

stream time Capper-Neill site

FINANCIAL TIMES

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NEWS SUMMARY

Iran cuts defence spending in its latest budget... Mr. Cyrus Vance, the U.S. Secretary of State, left Riyadh today to continue his Middle East fact-finding tour...

Saudi oil pressure on U.S. to force Israeli settlement

BY OUR OWN CORRESPONDENT: JEDDAH, FEB. 20

Mr. Cyrus Vance, the U.S. Secretary of State, left Riyadh today to continue his Middle East fact-finding tour with the message that, in return for holding down the rise in crude oil prices, Saudi Arabia expects Washington to press Israel into an early peace settlement.

Unhappy

Mr. Vance, who flew out to Syria for talks with President Assad, was also left in no doubt that the Saudis are unhappy about the proposed legislation by the U.S. to prevent companies from complying with the Arab boycott of Israel.

POLITICAL TESTS FOR CALLAGHAN...

Ministers expect guillotine victory Successor to Crosland named to-day

BY PHILIP RAWSTORNE

MINISTERS now appear confident of commanding a majority in tomorrow's crucial Commons vote for guillotining its controversial devolution legislation.



Mr. Healey: favourite for the post

MR. JAMES CALLAGHAN is to announce tonight the Cabinet changes made necessary by the death of Mr. Anthony Crosland, the Foreign Secretary.

Mr. Francis Pym, the Tory spokesman, announced on Saturday that on behalf of the Shadow Cabinet he had asked the Government to set up a constitutional conference to see if broad agreement could be reached on a solution to the devolution issue.

Uganda Government admit the body of the Most Rev. Archbishop Da, had been buried near Gulu, 200 miles from All Saints Cathedral, was packed for an international memorial service.

Ya bishop for action

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Treasury acts to prevent over-spending

TREASURY has had intensive discussions with other Government departments to try to prevent over-spending in the coming financial year.

Stockbrokers hurt to-day

News Altman and Mr. Carnes, directors of City stockbrokers Lewis and Co., who were on Saturday for alleged fraud in the Exchange Commission, 1947, are to appear at the High Court today.

Unions want to speed up Marathon order

SHOP STEWARDS at Marathon's drilling rig yard on Clydebank are seeking talks with Government Ministers to try to speed up a State order for a rig.

Deaths

Two men and a woman were killed yesterday in a fall at Lutworth Cove. Six other pupils on a field trip from a Surrey school injured.

Features

Table with 2 columns: Feature Name and Page Number. Includes Justinian, Computers, On Other Pages, and Annual Statements.

Leyland cars group faces total shutdown

BY CHRISTIAN TYLER, LABOUR STAFF

BRITISH LEYLAND today faces the possibility of a complete shutdown in its cars group by the end of this week.

The last hopes of averting what could be the worst stoppage for years vanished at the week-end when unofficial leaders of 6,000 toolmakers-shielded workers vital job in the manufacture of car parts and bodies—decided to go ahead with a strike that began on Friday afternoon.

BSC stainless steel sales soar

BY ROY HODSON

BRITISH STEEL has scored an international success with the timing of its investment for doubling the production of high value stainless steels.

In a generally lifeless international steel market—some Continental steelmakers are going through the worst recession in their histories—the corporation is pushing its stainless steel business to record levels.

£11m. office property deal

BY JOE RENNISON

LONDON AND Manchester Assurance has sold its offices in Finsbury Square, London, for £11m. to Canadian Pacific Steamships in one of the biggest property deals of its kind in the last few years.

Keep your options open with Portakabin instant accommodation



Let Portakabin units accommodate all your changing needs. Portakabin flexibility means you can easily 'add-it-on'... take it away... bring it back... change its use or profitably sell it off.

Your Enquiry Coupon form with fields for Name, Organisation, Address, and Telephone.

Trade figures may be wrong

BY SAMUEL BRITTON

ONE OF THE economic sensations of 1969 was the announcement on June 17 of that year...

Overstatement

Sterling's discount against the dollar fluctuated between less than 4 per cent and more than 15 per cent...

Less shock

If the error turns out to be on the scale of 1969, a considerable part of the current deficit of £1.5bn. incurred in 1976 would disappear...

Ruritanian income and U.K. tax

BY JUSTMAN

INCOME ARISING outside the United Kingdom and paid to a person not resident within the United Kingdom escapes U.K. income tax...

Expenses

The intriguing question that the House of Lords grappled with in Lord Chetwode's case...

Authority

Lord Wilberforce began his elegant judgment by tactfully and graciously commending the view taken by the Court of Appeal...

in the tax code, or are granted by way of relief. If one applied those words to the foreign dividends of the kind which BIC received...

Common sense

Lord Wilberforce could see only two arguments available to Lord Chetwode to negative that approach...

Authority

Lord Wilberforce began his elegant judgment by tactfully and graciously commending the view taken by the Court of Appeal...

Authority

The starting point to answering that question was a classic quote for a judgment of Lord Radcliffe...

RUGBY UNION England fail to cash in on their advantages

BY PETER ROBBINS

ANOTHER STUPENDOUS performance by the pack brought England tantalisingly close to victory against the French on Saturday...

Scotland show more urgency

BY STUART ALEXANDER

SCORELINES do not always tell the whole story, so no doubt many of those who saw the game at Twickenham on Saturday...

To-day's racing off

Whether Slattery impressed the Lions selectors is open to doubt, though they may have taken heart from the Scottish centre and captain McGeehan...

its length. He also chose wisely to try a break twice on the short side. Cooper, after a handsome run, did not kick at all well...

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Whether Slattery impressed the Lions selectors is open to doubt, though they may have taken heart from the Scottish centre and captain McGeehan...

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TV Radio programme listings for various channels including BBC 1, BBC 2, and ITV.

F.T. CROSSWORD PUZZLE No. 3311 with a grid and clues for Across and Down.

REGIONAL NEWS listings for various areas including London, Midlands, Border, Channel, and others.

SOCCER BY TREVOR BAILEY

Norwich skill is impressive

NORWICH CITY and Coventry City share a number of similarities. Both occupy middle-of-the-table positions in the league with only a point separating them...

TENNIS BY JOHN BARRETT

Miss Barker is £45 richer

ONCE AGAIN it was a week for favourites at the Palace Hotel, Torquay, as the fifth BP Cup Competition produced one-sided victories for the women of Britain and the men of the U.S.

ACROSS and DOWN crossword clues and solutions.

RADIO 1 and RADIO 4 programme listings.

Additional text for the tennis and Miss Barker articles.

BY PETER... the Financial Times Monday February 21 1977... Exchange, Manchester

Uncle Vanya

...el Effort's production... Uncle Vanya... the audience... the acting area... the production is as totally... as any I have seen... National's at Chichester... leafy bough is lowered... above, a Stanislavskian... the calls of... dogs... are certainly in the... of Professor Serebryakov... Two figures sit... candle-lit table, and... of a sitting-room... up around them in the... then, to the designs by... the lighting by... Williams, the sound by... but above all to the... for a set of finely... performances that could... have evoked the scene... scenery at all... asings over the household... cloud. Leo McKern's... furry, absurd Vanya not... old, he looks it, though... till on the right side of... Albert Finney's Astrov, his... activity through... of overwork, wears his... in a lined, third... it lights up only when he... of his work of conserva-

...a beard, and Mr. Finney... Chekhov in person. His... of those interesting... that achieve emotion... Bates as a dignified... an exclusion of emotion... the face cap and Susan... of Chekhovian ser... vants, make up the rest... of his work for the forest... case. It is characteristic... of the production that... to make her take some... of him, and when he later... the Good young gentleman... Bible calls "a shabby... his surrender is auto-... McKern's Vanya, on the... and, wears his emotions... and old sleeve, colour-... the real thing, donated by... Pushkin Club.

...ay Hall

Greek hymns

...rtine Music" was the... the programme cover... concert given on Thurs-... the Choir of St. Sophia... al of Saint Sophia... ter. The description... "Recital of ecclesiastical... was more precise. What... rd was liturgical music... Greek Orthodox services... How strongly it descends... here sung by male voices... "probably" according to... programme note, deriving... from Hebrew and early... in liturgies" is for... to say. Peatecostal... were sung by male voices... de chanted by the choir's... rainer and conductor... Trantallides, four or five... providing that continuous... one which is sometimes... to non-Orthodox ears... bourdon surely ought to... chant free and give it... but it seems to do the... to force it towards... patterns unsuitable to... It is usually fatal to... one culture in terms of... a rhythmic freedom and... of good Gregorian chant... twice the drone was... up into the tenor register... feels more curious than... "Hymns from the... the second part... ent matter. Now women's



Lesley Collier (Bianca) and Wayne Eagling (Lucentio) in 'The Taming of the Shrew'

Haydee and Cragun

by CLEMENT CRISP

...The idea of a true dance... partnership—permanent, mutu-... ally dependant and mutually en-... hancing, honed and polished... over the years—is becoming rare... in ballet to-day. Stars whiz... round the world, forming ad hoc... duets with other guest artists, but... there is never enough time for... the years of rehearsal and the... deep understanding that will... result in an artistic communion... which can illuminate the drama-... tic and dynamic core of a ballet... The example of Markova and... Dolin, of Danilova and Franklin, who... worked together for a decade... and whose joint interpretations... were marked by a singleness of... purpose and ideals, seems almost... lost to the ballet of the 1970s... (The Sibley/Dowell linking was the... nearest to this happy state in recent... years.)

...The example of Marcia Haydee... and Richard Cragun is thus all... the more exciting as a triumphant... assertion of the theatrical magic... of a permanent partnership. Both... magnificent dancers, they appear... aware of each other at every... moment on stage. On the bedrock... of almost intuitive partnering... they can afford to elaborate their... joint interpretation, play jokes, even seem to improvise... as we saw on Saturday night... when they assumed the roles... made for them in Taming of the... Shrew. It was a golden

...evening. Though Shrew is no... masterpiece, it can look very... like one when Haydee and... Cragun set about teasing and... fighting together. From the opening... scene, in which Miss Haydee emerges... on to a balcony to dampen the... ardour of Bianca's suitors, to the... beautiful submission to Petruccio... and their final joyous reconciliation... in a ballet Etzed with life. Storming... through the first act and creating... six different sorts of mayhem; facing... up to Petruccio like the fly-... weight champion of the world; who... snapped at Bianca (the scenes... decade and whose joint interpretations... were marked by a singleness of... purpose and ideals, seems almost... lost to the ballet of the 1970s... (The Sibley/Dowell linking was the... nearest to this happy state in recent... years.)

...Festival Hall

Bach Choir

by MAX LOPPERS

...Benjamin Britten's music was... not on the programme of... Friday's choral concert, in which... the Bach Choir and New Phil-... harmonia Orchestra were con-... ducted by David Willcocks. Yet... so strongly was his influence felt... on two of the works performed, John... Rutter's The Falcon (its London... first performance) and Gordon... Cross's Changes, that his position... as the most significant British... composer of choral music this... century was a kind of subtext... of subtext, and summary of the... evening.

...John Rutter's work was written... and first performed in the late... 1960s, and his style may have... changed and matured since then... deal since (I have not heard any... of his other compositions); at... that stage the Britten influence... was smothering. The

...Theatre Royal, Glasgow

Jenufa

by ELIZABETH FORBES

...The performance of Janacek's... Jenufa given by Scottish Opera... at the Theatre Royal, Glasgow... on Saturday, was received by a... full house with the total absorp-... tion, the almost palpable sense... that denotes a cathartic dramatic... experience. In 1976, the opera... at Cardiff by the Welsh National... Opera, David Pountney's produc-... tion was subsequently toured... (with some changes of cast) by... the WNO and now arrives in... Glasgow with the four original... principal singers and the... original conductor, first fruit... of a lease-lead agreement between... the two companies that is so... far proving outstandingly... successful.

...Mr. Pountney has considerably... tightened up his production, especially... in the opening scene, where... Janacek himself did not... quite achieve, in this early opera... (his third), the immediate dra-... matic tension characteristic of... his later works for the theatre... The emotional stresses and... strains within the Buryja family... are now evident right from the... beginning, while any necessary... contrast is provided later in the... act by the drunken celebrations... of Steva and his companions.

...Maria Björnsdottir's spare, ele-... gant sets look marvellous in the... Theatre Royal; she was origi-... nally criticised for failing to... suggest the cramped, confining... atmosphere of the Kostelnicka's... home, but the claustrophobic... feeling induced in Jenufa by the... weeks of waiting for her baby's... birth is made quite clear by her... actions—and her simple, white... Miss Björnsdottir's huge skylight... is used with hair-raising effective-... ness when it blows open at the... end of the second act.

...Individual characterizations... have been refined and honed... until they cut as sharply as... a knife. Josephine Bystrov... encompasses the high spirits of... the Jenufa to whom Steva is... attracted, the anguish of the... woman betrayed and abandoned... of the mother deprived of her... child, the giving moving expres-... sion to Jenufa's growing love for... Laca and her feelings of affec-... tion and gratitude for the Kostel-... nicka. Her singing is so com-... pletely integrated into her... dramatic conception of the role... that the two aspects of the per-... formance cannot be separated. Pauline... Tinsley, in firm and lustre-... ous voice, makes a very human... figure of the Kostelnicka; esche-... wing melodrama, she carries entire... conviction as a woman in whom

...pride is the dominant emotion... until she is forced to look into... her own soul. Allen Cathcart's Laca... has grown in depth and understand-... ing; he can communicate great... tenderness as well as strength... In striking contrast, Gregory... Dempsey's attractively irrespon-... sible Steva is equally well-drawn... Among the smaller roles, all... neatly characterised and com-... pletely sung, Gillian Ramsden's... jubilant young shepherd-boy... Jeno, and Lauren Livingston's... pert, pretty Karolka are outstand-... ing. To Richard Armstrong, who... conducts the Scottish Philhar-... monia, must go a large share... of credit for the shattering effect... of the performance.

...King's Head

Edith Piaf, je vous aime

Libby Morris has put together a nostalgic evening of 35 of Edith Piaf's songs, mostly translated into English, though she has had the good sense to see that "Non, je ne regrette rien" could never be put into the right English words if a dozen Post Laureates tried it for a decade. She has three singers with her, Maureen Scott, John Muirhead and Tony Bateman, plus a pianist and an accompanist.

...Much of the spirit of that simple, silly, astonishing woman whom all right-minded people admired beyond the bounds of good sense, is conveyed through the succession of pretty, death-baunted romances in triple time. Though Miss Morris is the only

Katya Kabanova

by MAX LOPPERS

...Janacek's masterpiece is cur-... rently revived at the Coliseum... The staging by John Blatchley... with the sets of Stefanos... Lazaridis and the exquisite light-... ing and projections of David... Hersey, is one of the glories of... contemporary operatic produc-... tion, and is in good condition... apart from the handful of stage-... management mishaps that... habitually mar ENO last nights... Charles Mackerras is back in the... pit, urging the orchestra to new... mastery—to the fiery, thrilling... sonorities, the vibrant timbres... and colours is added a new lyr-... ical sweetness in the love music... The cast plays as if Janacek... were in his blood. On Thursday... not much seemed wrong in the... opera house—except for thin... patches in the audience. Mystify-... ing phenomenon, that an opera... of such life-enhancing honesty, directness, and depth of feeling... should each time need fresh en-... couraging on the public, with... and full. To have one fine Katya... is uncommon; to have two is... wonderful.

Jorge Bolet

by DOMINIC GILL

...In an unusually discerning... burst of enthusiasm, Harold C... Schoenberg once described Jorge... Bolet as "one of the great Liszt... pianists of the century, with... fingers of a Horowitz and the tone... of a Lhevinne." Opportunities to... hear this legendary Cuban-... American pianist in England... have been rare. Bolet surfaced... briefly to give a tantalising per-... formance of a single work at the... Festival Hall during an Inter-... national Piano Library jamboree... two years ago—his only appear-... ance here for many years. We... have had otherwise to rely on... records; and even these, from... American RCA, have been diffi-... cult to find. So it was specially... exhilarating on Thursday to con-... firm what one had always half... suspected, but never had the... chance to prove at first hand: that... there is indeed not an ounce of... exaggeration to Schoenberg's... praise.

...Bolet is an enormous pianist;... enormous in physical stature, in... musical weight, in technical... command. But neither is he any... kind of sledgehammer artist: the... weight is kept in reserve, power-... fully contained. He is a pianist... of the old, grand school (and... actually of the Curtis School... during the great Hofmann era).... Could any other living musician... except perhaps Horowitz, and... more idiosyncratically, Cher-... chovsky, have transported us with... such vivid, explosive force to the... early years of the century—to... the piano rolls of Lhevinne and... Godowsky, the acoustic records... of Rakshaminova?

...It was the recital of the sub-... limest nostalgia, and the keene-... st living presence, which gathered... momentum as it went. The point... of highest excitement was Bolet's... second half devoted to Liszt: the... three Etudes de Chopin, a glorious... performance of the purest magic, the... long, sighing lines of "Un jour... lamento" marvellously shaped... and controlled, the embellish-... ments of "La leierweibe" waxes... rose chains of liquid fire. "Un... Godowsky's arrangement of the... sospiro" a breath of fresh air, a... melancholy perfume. Before... these, he had given us Haydn's... last sonata (the E flat, no. 32),... be soon, there will be more of... drawn in a range of colours and... subtle shades which Haydn could... only (and might, at some en-... dowed moment before dawn)... have dreamed of and a massive... account of Regner's Telemann... Variations op. 134, given with... prodigious dexterity in the... Echovier; the charming young... couple of Terry Jenkins and Bar-... bara Walker. The way the water... ripples and flows, under the... incisive purity of Lorna Hay-... wood, Miss June's predecessor in... the role, the music was voiced... with warmth, in tones radiant... and full.

Mahler's Ninth

by PAUL GRIFFITHS

...Mahler's Ninth Symphony is in... so many ways a final work. It... is the last composition Mahler... completed and it contains, in its... strings sound with the... well of an artist who had already... several times prepared his depar-... ture. From a more general point... of view, it is the last monument... in the great tradition of the... Austro-German symphony, and... the last masterpiece of musical... romanticism. No performance of... it could fail to convey the weight... of all these finalities.

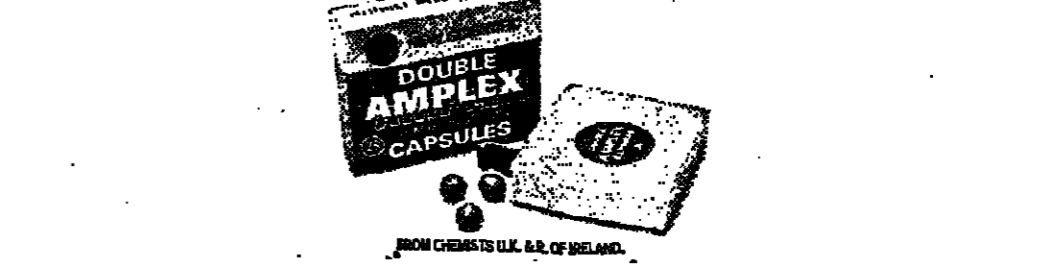
...In other respects, however, the... symphony carries within it the... seeds and reflections of new be-... ginnings; and it was this aspect... of renewal and bursting inven-... tiveness that came across most... clearly on Thursday, when Janos... Furst conducted the London... Philharmonic Orchestra in a... concert consisting of just this... one work. The first three move-... ments contained the funeral pas-... sages of tension and drama... again and again reminding one... that, while Mahler was at work... on this symphony, Schoenberg... and his pupils were creating the... first atonal compositions. And... the last masterpiece of musical... romanticism, an under-rehearsed... orchestra, and an overabundance... of stodgy rhythms. Eiddwen... Harry, the valiant last-minute... soprano soloist (replacing the... indisposed Felicity Lott), had... not mastered all the right notes;... Stephen Roberts, the baritone;... Stephen Woolf, Holst's Hymn of... Jesus completed the programme.

...Of course, by this time the... Mahler's last leave-taking was... orchestra had been playing for... close to an hour and a-half, and... EPO one might have expected some... fatigue; though in fact they had... never shown quite the confidence... clarity of the Alpine light which... or accomplishment needed for a... work which must be consider-... ably more testing than many... particular, were thin and tired, so... commonly regard it as orches-... tral showpieces. In the end, however, Mahler's Ninth... as passing away in regret or in... inadequacy seems to triumph over... inadequacy.

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...ay Hall

Greek hymns

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WHAT'S A PAIR OF EYES WORTH?

Think about it. Then think about Britain's blind people, all 120,000 of them. We're doing a lot for them now, but with your help, through legacies and donations, we could do a great deal more.

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OVERSEAS NEWS

Turkey cool to Clifford mission

By Metin Mumin ANKARA, Feb. 20.

U.S. PRESIDENT Jimmy Carter's personal emissary in the eastern Mediterranean, Mr. Clark Clifford, arrived here this evening for two days of talks with Turkish leaders on the Cyprus question, Turkish-U.S. defence relations and Turco-Greek problems.

Mr. Clifford said he hoped his visit would "deepen and broaden and make even more significant the long and happy relationship between our two countries."

At the airport, where he was met by Turkish Foreign Minister Hasan Sabri Caglayangi, Mr. Clifford said he hoped his visit would "deepen and broaden and make even more significant the long and happy relationship between our two countries."

Turkish-U.S. relations have been ever since the Cyprus war of 1974. Washington imposed a ban on arms supplies to Turkey and was deprived of its uses of its bases on Turkish soil as a consequence.

Dissidents no stumbling block to talks—Brzezinski

BY DAVID BELL WASHINGTON, Feb. 20.

THE SOVIET UNION is continuing private talks with the U.S. about arms control, trade and other matters despite its public criticism of President Carter for his open support of Soviet dissidents.

Mr. Zbigniew Brzezinski, Mr. Carter's National Security Affairs adviser, disclosed this today in an interview with the New York Times during which he insisted that there was nothing "inadvertent" about Mr. Carter's recent letter to Mr. Andrei Sakharov, a leader of the dissident movement. He said the implications of the letter had been carefully thought through and fully discussed before it was sent.

"Imagine," he said, "the President of the United States who on his inauguration day speaks of his dedication to human rights receiving a letter from a Nobel Peace Prize Winner residing, say, in Chile or South Korea. Would he ignore it? I think not."

Accordingly it had been decided that the President would write a "very general letter" re-stating in very broad terms "the President's concern for human rights, not pointed at any particular nation."

The administration had realised that Mr. Sakharov might choose to release the letter and had not tried to stop him from doing so.

"The alternative was to make a public response which would have been far more pointed and provocative. Another possibility was not to respond at all which, if you consider the circumstances, would be scarcely reasonable," Mr. Brzezinski said.

The whole question had been discussed at great length with Mr. Anatoly Dobrynin, the Soviet Ambassador, along with other issues such as arms control and trade.

On the fundamentals we are making and have been making an effort to get discussions going—to move on Salt and on MBR and to widen the range of discussion. It has not surfaced yet, but I think it will produce dividends before too long.

Rhodesians admit Botswana raid

BY OUR OWN CORRESPONDENT

IN A communiqué announcing the death of a white police inspector and the wounding of a field reservist during what military headquarters (this week-end) described as a "hot pursuit" operation, the Rhodesian Government has for the first time disclosed that its forces have crossed into Botswana.

The communiqué also announced the deaths in separate incidents of one white and two African police constables, and 13 guerrillas while the border post of Vila Salazar has again come under "unprovoked" rocket, mortar and small arms fire from Mozambique.

According to the communiqué, a police team crossed the border "acting on information received" regarding a group of five guerrillas allegedly operating from Botswana.

The group, it was claimed, had been responsible "for a recent series of abductions and brutalities" in the Mopani district of Rhodesia.

making forays into Rhodesia, while Botswana has counter-attacked that Rhodesian forces have regularly infringed their territory.

An increasing number of young blacks are crossing into Botswana, either voluntarily or, according to the Rhodesian government, abducted by guerrillas. From there they are sent to Zambia for training under the Zimbabwe African Peoples Union led by Mr. Joshua Nkomo.

At least 1,000 have crossed in the past few weeks, but the in- and out racial discrimination in certain areas. But he refused to go into details, saying the legislation was confidential until it reached Parliament.

The Government, he said, had considered the removal of all racial discrimination, but said this posed serious problems, particularly in the protection of black areas.

Suarez plans economic package

BY ROGER MATTHEWS MADRID, Feb. 20.

MINISTERS IN Spain were this week-end putting the final touches to a package of economic measures scheduled to be announced on Tuesday.

Despite a ten-hour Cabinet meeting on Friday, disagreement remained on several important issues, including possible changes to the parity of the peseta.

The Government has finally accepted the need for limited action to stem the continuing deterioration in the economy, it is deeply concerned that its measures should not add to social tensions that might threaten its political liberalisation programme.

Brandt links with CIA is denied

SALISBURY, Feb. 20.

A SPOKESMAN for the German Social Democratic Party has described as "a standing accusation" a charge that Chancellor Helmut Schmidt and former German Chancellor Willy Brandt had secret financial dealings with the American Central Intelligence Agency, UPI reports from Bonn.

The spokesman, who said the party was making a demand on Brandt's behalf, was quoted in a report in the West German Post based on a book "The CIA and the Cult of Intelligence" which is reported to claim the addition to Herr Brandt, Hussein of Jordan, and Prince Khalid of Saudi Arabia, and Mohammed of Guyana—all had dealings with the CIA.

Syrian PLO camps closed

PALESTINIAN guerrillas Yasser Arafat yesterday ordered some Palestinian military camps in Syria to be closed.

The spokesman, who said the party was making a demand on Brandt's behalf, was quoted in a report in the West German Post based on a book "The CIA and the Cult of Intelligence" which is reported to claim the addition to Herr Brandt, Hussein of Jordan, and Prince Khalid of Saudi Arabia, and Mohammed of Guyana—all had dealings with the CIA.

Dutch wage talks

SOME prospects of movement appeared in the Dutch wage dispute deadlock over a week-end after the unions and employers agreed to meet.

The Government has set targets of a 6.5 per cent increase in exports this year, and 3.5 per cent rise in the gross industrial product.

Prime Minister Adolfo Suarez is also working towards the completion of the electoral law which will govern the general elections due to be held before the end of June.

Khartoum summit

THE Presidents of Egypt and Sudan will meet in Khartoum on February 27 for a summit expected to last two days.

The summit is expected to be the first of a series of meetings between the two leaders since the Sudanese coup in 1970. The other 14 members of the ruling military council in the Sudan are expected to be present.

Communists quit

THE pro-Moscow Sri Lanka Communist Party yesterday quit the Government.

The party's 10 members, including its only Minister Mr. P. Jayasinghe, resigned as a result of the final decision of the three-party Front which Mrs. Bandula Kumari had announced in 1970. The other 14 members of the ruling military council in the Sudan are expected to be present.

Voters in Spain move to centre

BY REGINALD DALE, European Editor MADRID, Feb. 20.

SPANISH public opinion has reacted against the violence and uncertainty of recent weeks by moving away from the extreme Right and Left towards the centre, according to private soundings carried out for the Government.

The latest secret poll, conducted at the end of last month, shows that the recently-founded Democratic Centre group would win about one-third of the total vote if elections were held now.

Support for the right-wing Popular Alliance and the Communist Party has markedly declined, to 14 per cent and 7.8 per cent of the electorate respectively.

PCI caught off guard by riots

BY PAUL BETTS

WHILE THE present wave of violence continued in Italy this week-end with the killing of a policeman and further student clashes and demonstrations, the Italian Communist Party has openly admitted that it had seriously misread the gravity and complexity of the current Italian student crisis.

In an official statement released here yesterday—which in effect represents a post mortem on last Thursday's riots at Rome University following a speech by the Communist trade union leader Signor Luciano Lama—the Communist Party disowned the party's own disarray for failing to grasp the seriousness of the student unrest and for not averting last week's clashes at the university here.

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Swedish State Company Limited — Statsforetag Aktiebolag — Stockholm

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DM 100,000,000 7% Bearer Bonds of 1977/1985

Offering price: 99 1/2%

Table listing various international banks and financial institutions under the heading 'SWEDISH STATE COMPANY LIMITED'.

PLANT & MACHINERY SALES advertisement listing various industrial equipment like furnaces, saws, and presses with descriptions and prices.

CONTRACTS AND TENDERS advertisement for the Democratic and Popular Republic of Algeria, Kingdom of Thailand, and Saudi Arabian Contractor.

Arabic text at the bottom of the page.

WORLD TRADE NEWS

U.S. Treasury may appeal in TV case

WASHINGTON, Feb. 20. U.S. TREASURY will likely appeal if a New York court... Fred Bergsten, Assistant Secretary...

Soviet oil deal with India near

NEW DELHI, Feb. 20. AN INDIAN trade delegation has visited Moscow for final negotiations on import of 1m. tonnes of Russian crude oil...

DOING BUSINESS IN THE MIDDLE EAST

The post-Nasser spending spree continues

BY MICHAEL TINGAY IN CAIRO

PICKING UP the English language publications in an average week the businessman visiting Cairo would be deluged with facts and figures on matters economic. Only the recent riots, dominating the news, succeeded in pushing aside the usual barrage of items on investment approvals, expected loans, new funds and expected improvements in the budget deficit.

arter surpluses moves

OUR OWN CORRESPONDENT WASHINGTON, Feb. 20. ARTER Administration is using other industrialised countries with large current surpluses to move more towards a senior U.S. Official said over the weekend.

Swiss in Turkish dam project

ZURICH, Feb. 20. SWITZERLAND'S three leading commercial banks - Swiss Bank Corporation, Swiss Credit Bank and Union Bank of Switzerland - have offered to help finance large-scale Turkish orders with Swiss manufacturers in connection with installations for the second Euphrates dam.

Finance for Yugoslavia

VIENNA, Feb. 20. AUSTRIA'S visible trade deficit last year jumped by 75 per cent. to an all-time peak of Sch.53.2bn. (E1.85bn.) and gold and foreign exchange reserves dropped by Sch.21.9bn. compared to 1975.

Contracts

P & O is to join American and Saudi Arabian interests in the formation of a new inland transport company, the National Transport Company of Saudi Arabia, to provide road transport services through the Arabian peninsula.

World Economic Indicators

Table with columns: RETAIL PRICE INDICES, Change on year earlier, Index base year. Rows for Jan. 77, Dec. 76, Nov. 76, Oct. 76, Sep. 76, Aug. 76, Jul. 76, Jun. 76, May 76, Apr. 76, Mar. 76, Feb. 76, Jan. 76.

Scotboard - 10 years old - but big for its age

And a pretty precocious ten-year old, at that. After all, from the time we opened our first production line in 1967 - a caulless system that's since become standard for the industry - we've been setting the pace for innovation in chipboard manufacture.

In the early 70's, we introduced integral tongued and grooved flooring board to the market. And, in 1974, we became the first manufacturer in the U.K. to produce a chipboard that met the stringent tests for the British Standard Flooring Grade.

With Scotseal, we have become the only producer in Europe of this treated board, capable of lying about in any weather without falling apart.

And, most recently, we've opened a new production line for special fibre surfaced board tailored for the furniture industry.

All along the way, these ten years, we've been developing new ways to improve the product and conserve raw materials for future generations. We believe that's both good sense - and good business.

So, if as Wordsworth said, the child is father to the man, we feel downright optimistic as we start our second decade.



Scotboard Innovators in Chipboard

Irvine Industrial Estate, Irvine, Ayrshire KA12 8NA. SALES OFFICE: Direct Lines. Tel: Irvine (0294) 72321-4

A member of the BPP Industries Group

Building and Civil Engineering

£10m. Mears award Fairclough work in East Anglia

A CONTRACT valued at over £10m. has been awarded to Mears Construction by the Property Services Agency acting as agent for the Ministry of Defence.

The three-year contract, which will be concerned with the modernisation of the Army's Central Ammunition Depot at Kineton, Warwickshire, will involve up to 300 workers on extensive demolitions and earthworks, new buildings, road and rail communications and ancillary services.

£1½m. jobs awarded to Cubitts

TWO WELSH contracts involving new homes and a factory reconstruction and jointly worth £1.5m. have been awarded to Holland, Hannen and Cubitts Construction (London).

Under a contract worth about £900,000, Cubitts will build 88 houses in the first phase of a major development at Barracks Field, Newport, Gwent. This project is financed by the National Housing Corporation through the Spiral Housing Society. Architects are the National Building Agency and completion is

The second project is reconstruction of the Cwmbran factory and offices of Girding. This contract, worth just over £300,000, involves demolition of part of the existing offices and then extension of the factory with new supporting steelwork and roof above the existing roof ridge level.

Shops and flats in Piccadilly

TROLLOPE AND COLLS is to undertake a shops and flats development on the Monica site at London's Piccadilly Circus.

The work is being carried out for Land Securities Investment Trust and the overall scheme has been designed by Sir John Burnet Tait and Partners.

Demolition of the existing shops and offices will be carried out by Goodman Price. During the 78-week contract, Trollope and Colls will erect a split-level reinforced concrete complex on piled foundations consisting of basement, ground and first floor at the frontage of the development with the first, second and third floor section rising at the rear.

New homes in Golden Valley

TAYLOR WOODROW is to build 160 homes on a 10½-acre site known as Golden Valley at Eaststone, Milton Keynes.

Phase development will begin in the spring of detached, semi-detached and terraced dwellings, all with garages and in the price range £10,000-£14,950.

There is to be substantial landscaping and planting, including a local park. Design and implementation of these facilities will be undertaken by the Development Corporation.

Factories in Wales

TWO ADVANCE factories, each of 10,000 square feet, have been ordered by the Welsh Development Agency.

One, costing £110,000, is to be built at Noble Square, Brynmawr, by E. Turner and Sons, of Cardiff, and the other, costing £100,000, will be erected on the Ghyr Hall Industrial Estate, Caernarvon, by Watkin Jones and Son, of Bangor.

A problem in Athens

PROBLEMS of liquid waste collection and disposal in metropolitan Athens are to be studied and reported on by consulting engineers J. D. and D. M. Watson following the signing of an agreement signed with the Greek Minister of Public Works last week.

The study will cover some 5,400 square kilometres and include the City of Athens, the Attic Peninsula, the Saronic and Elefsis Gulfs and the islands of Aegina and Salamina.

About three-quarters of metropolitan Athens is connected to an inadequate sewerage system; sewage is mostly discharged into the sea untreated and close to the entrance of the harbour at Piraeus.

Stocks cut by merchant

A and O JOHANSEN A/S, one of Denmark's biggest builders' merchants, has probably the most sophisticated on-line sales processing and inventory control system in the industry in Europe.

All transactions concerning stock and customers are done in a conversational mode through visual display terminals and printers linked to an NCR computer. This gives Johansen accurate and up-to-date information on stock and its availability and credit control.

The system has enabled them to reduce stock by 25 per cent at the same time as increasing turnover and maintaining the service to customers.

Guide to software

CONSULTING architects Hutton and Rostron are setting up an information service dealing with software for the construction industry. This will complement their International Directory of Computer Programs for the Building Industry, which is being revised for publication in 1977.

The Directory is thought to be the only world-wide source of reference for computer services to the construction industry, and covers all topics likely to be of interest to the architect, engineer or planner, from design of office structures, as well as subjects more closely related to the building industry, such as structural analysis, heating and ventilation, and design of electrical services.

Information is collected by questionnaires, and abstracts are prepared and published as a free service. Hutton and Rostron will also prepare two-page descriptions of programs or services, to be included in a separate section of the book. The directory will be published this spring by Hutton and Rostron, Nealey House, Gomshall, Surrey, GU5 9QA.

Leyland in £5m. plan

LEYLAND SPECIAL Products has announced a £5m. modernisation and re-equipment programme for Aveling and Porter of Gainsborough, Lincs., the ever single investment plan of a group member factory.

The plant—taken over by Leyland Special Products 18 months ago—produces crawler tractors and tractor shovels for the cultural and construction industries. Over 800 people work the site.

Investment programmes spread over the next two years cover mainly factory re-erecting and modernisation, as well as new or replacement machine tools.

The Wales and West Housing Association is building another 600 homes with electric storage heating. For all the right reasons.


"Very economical—I can live all-electric for less than £2 a week!" Mrs. D. Smith, Cardiff



"How cosy it is! The heat goes all through my home!" Mrs. A. Gardiner, Cardiff



"No work, no dust... far safer without a doubt!" Mrs. M. E. Thomas, Cardiff



"Flexible, reliable... lower capital costs!" Mr. D. Powell, Chief Executive, Wales & West Housing Assn., Cardiff



Here are just three of the satisfied tenants who enjoy electric storage heating in homes developed by the Wales and West Housing Association.

This association has already installed electric storage heating in over 1,300 homes, and another 600 more are scheduled for 1976/77.

"The more experience I have of heating systems, the more firmly convinced I am that electric heating is the only way," says Mr. D. Powell, the association's chief executive.

"Used properly and located sensibly, electric storage heating is clean, comfortable, and allows tenants full control over their environment. Capital costs are lower, and maintenance is no problem. And in all-

electric homes the tenant pays only one standing charge.

"All things considered, electric heating must be the system of the future."

It's good sense to build with electric heating plus good insulation. And we can prove it. Get the up-to-date facts about electric heating systems from your Electricity Board or send for the 'Build Electric' package, including detailed Wales and West Housing Association costings, from Douglas Ackery, The Electricity Council, 30 Millbank, London SW1P 4RD.

It's good sense to build with electric heating.

BUILDELECTRIC

The Electricity Council, England and Wales

Construction survey

FINANCIAL performance of the construction industry is better than current reports indicate. This is one of the rather surprising findings of the first of a series of surveys of the industry carried out by Jordan Dataquest.

Five sectors of the industry covering companies with over £1m. sales, companies with under £1m. sales, building materials, builders' merchants, and plant hire companies are being covered. The first two (dealing with sales) were published last week. Each covers about 400 firms and Jordan Dataquest says that among the larger companies only 41 were losing money according to the latest filed accounts. About 18 per cent of the smaller companies were losing money.

Data given in the first two surveys includes sales, exports, profits before tax, number of employees, wage bills, net assets, current assets, liabilities, overdrafts and details are given on 55 of a series of surveys of the industry carried out by Jordan Dataquest.

Financial information of the surveys is mainly based on figures for the years 1975/76 and 1976/77 from company region offices in London and Birmingham. Anyone intending an important decision on findings of the surveys, do well to get the figures dated. Jordan Dataquest is this.

The surveys are £28 each, two if purchased together (£46) and they can be ordered from Jordan Dataquest, 37 Brunsvick Street, London, N1. (01-253 3638)

Mobile office units

PORTABLE "instant" office units have been designed by Youngman System Building.

The units are available in 10 sizes and have woodgrain wall panelling, vinyl floor covering, sliding aluminium framed windows, decorated ceilings, fluorescent lighting and concealed 13 amp power points. Options include partitioning, and a wide choice of fixtures and fittings to meet specific customer requirements.

Externally, the 50mm glass fibre insulated walls have a textured protective coating and the roof is lined with asbestos-backed vinyl sheet to provide a weather-resistant maintenance-free structure.

Butterley's new brick

A MULTI-COLOURED facing brick made from colliery shale and called The Butterley Jubilee Mixture has been put on the market by Butterley Building Materials of Ripley, Derby.

The brick offers a blend of colours which were originally obtained by the traditional coal firing clays, but Butterley has now found it is able to reproduce the traditional colours—from orange reds through the browns to the deep purples—with modern brickmaking plant.

Butterley has a weekly output of over 8m. facing bricks of different types.

Absorbing the noise

INDUSTRIAL ACOUSTICS company a Staines has a sound absorption system based on modular panels. Available in Thomas Ness at Coalbrookdale, Shropshire, or from two forms, the panels permit Lyon Road, Harrow, Middlesex, TW18 4XB.

Depending on how it is laminated has a total thickness of 3 to 4mm and adds 10 kilos per square metre to the weight of the roof structure.

More on the material from the material manufacturer, Thomas Ness at Coalbrookdale, Shropshire, or from two forms, the panels permit Lyon Road, Harrow, Middlesex, TW18 4XB.

effective treatment for anything 01-427 9001.

IN BRIEF

- A £140,000 order for specialised mining equipment has been placed with Victor Products (Wallsend) by Compagnie des Phosphates et du Chemin de Fer de Gafsa, Tunisia.
- A £35,000 order for metal channels and fittings for use in the Boutique Hall of the Lewisham (London, S.E.13) Riverside Centre, has been secured by GTE Unistrut, of Oxford.
- W. A. Gale, a subsidiary of Norwest Holst, will build 22 houses and 16 flats in Liverpool and 34 houses in Bootle. The total value of the contract is approximately £1m.
- A.B.M. Chemicals, a subsidiary of Dalgety, is currently investing around £300,000 in new plant at Aycliffe and Gloucester.
- Benfield and Loxley have awarded the £1m. building contract for the erection of Phosphates et du Chemin de Fer de Gafsa, Tunisia.
- A £35,000 order for metal channels and fittings for use in the Boutique Hall of the Lewisham (London, S.E.13) Riverside Centre, has been secured by GTE Unistrut, of Oxford.
- George Wimpey has awarded a contract worth £250,000 for the refurbishing of an existing workshop at the building of a new room and the provision of administrative accommodation at RAF Henlow, Bedfordshire.



Norgren's Compressed Air Aces
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SHEPHERDSON ST, STAINES, MIDDLESEX, ENGLAND, U.K.
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● RADAR
Selenia to consolidate

AGREEMENT has now been reached between Selenia and Raytheon to end their co-operation in the field of marine radar from January 1, 1978. About a year ago the U.S. company sold its interest in Selenia so that the Italian electronics organisation is now entirely state owned. A problem, however, is that many of the company's 10,000 marine radars are installed with a Raytheon label. To look after the servicing of these—about a third of the world's heavy tonnage is equipped with such units—Selenia, a 5,500m company employing 6,000 people, is setting up new agencies in many parts of the world, one of which is Staveley Electric in the U.K. Staveley has been chosen because since the war it has developed into one of the largest specialist service companies in Europe. It operates a team of engineers able to carry out complete installation. As an interim step Selenia radars will continue to be marketed under the Raytheon brand exclusively until April 1 and on a non-exclusive basis from then until the end of 1977. Radars will be available under the Selenia trade mark, distributed internationally directly by the company's commercial network from April 1 and from that date the new Selenia service network will become operative. More from Staveley Electronics Services, 68, Grosvenor Street, Manchester M1 7EW (061-273 6321).

● INSTRUMENTS
Hydraulic test unit

HYDRAULIC SYSTEMS on a wide range of mobile and static machinery can be in-line tested with equipment launched by Lucas. It measures both flow and pressure by simple connection into the pressure line during normal working of the machine. Connection can be made at any point in the hydraulic system, and the maker says that by using the instrument under working conditions diagnosis of the cause of low system performance and isolation of the faulty component are simplified. Rated at 6,000 psi, the unit can measure up to 33 gal/min, monitoring the speed of an axial turbine and indicating the read-out on an oil-damped flow meter claimed to be accurate within 2 per cent of maximum flow. Accuracy is said to be not significantly affected by oil temperature viscosity or back pressure. To give maximum accuracy at all flow rates the instrument incorporates two scales, selected by a switch. Flow and pressure dials are calibrated in imperial and metric units. The instrument is powered by a battery which gives a life of about 200 hours—the unit weighs 10 lbs. Details from Lucas Industrial Equipment, Long Lane, Liverpool L9 7BW (051-855 9333).

● POWER
Not likely to fail

IN A power supply system introduced by Gresham Lion, a high reliability level is attained by operating identical supply modules in parallel. Two (or more) of the company's GXL units each giving up to 60V at 20mA are connected together across the load. Either is capable of supplying full load current alone and under normal conditions only one does so. In the event of failure the second takes over with no break in output. The GXL units have high stability with output regulation of 0.5mV from zero to full load and ripple and noise of less than 500mV peak to peak. Built-in monitoring circuits register when either unit has failed with both lamp and remote signal indication. The equipment is designated RGXL. More data may be obtained from Gresham House, Twickenham Road, Feltham, Middlesex TW12 6EA (01-894 5511).

● MATERIALS
Replacing asbestos

VACUUM-FORMED ceramic fibre insulation and protection for use in industry and domestic appliances is attracting the attention of many industries who are seeking replacements for asbestos formulations of various types. Fosco Refractories, which has developed Procal ceramic materials over a period of two years and carried out a number of field trials, reports that the material has extreme resistance to thermal shock and will withstand many of the most aggressive chemicals used in processing. The vacuum process simplifies control of final component shape and conforming of the insulator to the product to be protected, providing a smooth finish on all surfaces. Fosco expects export sales of this material to rise to about 60 per cent of total production this year. Fosco Refractories, Mostyn Road, Holywell, Clwyd CH8 9DS, Holywell 3114.

● PERIPHERALS
Terminal by Nixdorf

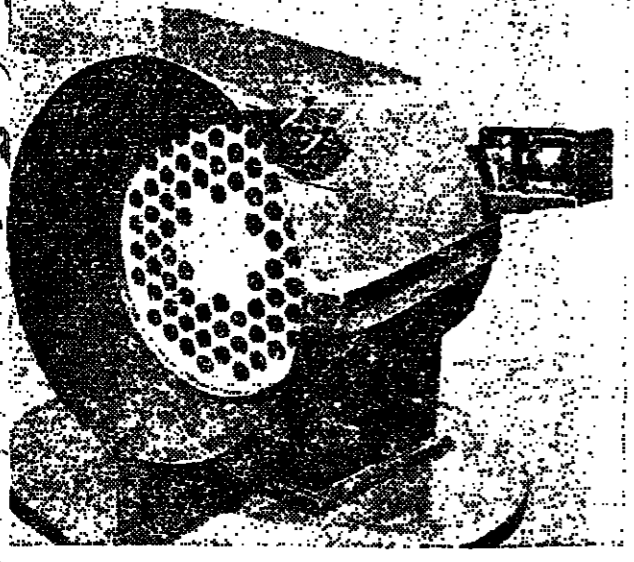
FOLLOWING the successful installation of some 500 units in Continental Europe, Nixdorf has now launched the 8820 disc-based distributed processing terminal in the U.K. Purpose of the equipment is to collect, check, organise and transmit data at the place where it originates, making use of an integrated console containing keyboard, CRT display, printer and floppy disc. The terminal can stand alone (although it will not be Nixdorf's policy to tackle small company applications in the first instance) or can be connected to a central computer or a regional machine. Basic terminal has a main memory size of 384, a 960 character visual display, communications adaptor and printer at 150 ch/sec. The main memory can be extended to 56k. The swivelling VDU can be field exchanged for 480 or 1920 characters. It is directly connected to the processor and acts as a "window on memory" rather than an external input/output buffer. Disc drives are built into the front panel of the terminal and can be unlocked only by program control; the discs are protected if left in the machine and cannot be accidentally erased. Up to three can be provided, yielding over 800 kilobytes of storage with an average access time of 484 ms. At a central site pooling of discs to magnetic tapes is possible as an alternative to on-line communications and a 32-disc stacker is available for the purpose. Using Basic and PL1 languages the user can program the terminal himself and can develop his own system through standard software packages. Nixdorf is aiming the 8820 at the U.K.'s top 500 companies where appropriate staff will already have experienced a variety of methods of data processing. The company expects to derive most business from local user department applications and where remote site data processing is required with communications. Nixdorf Computer, The Houslow Centre, 1, Lampton Road, Houslow, Middx. (01-872 3111).

● AGRICULTURE
Inter-row rotary hoe

FOR MOUNTING on the tractor 3-point linkage, an inter-row rotary hoe is being marketed in the U.K. by Carrfield Engineering and Construction, Rough Close Works, PO Box 7, Alfreton, Derbys., DE5 7AD (077383 2271). Built in Italy, the machine is available in two models, for 30 to 80 hp, and 18 to 45 hp tractors. Each is offered in narrow, medium and wide working widths, the small version from 1.65 to 3.3 metres and the large machine from 1.65 to 4.4 metres. The hoe consists of a tool bar on which are mounted from two to seven rotary hoe units. Drive is from the tractor pto, through a gearbox to a shaft running the width of the machine. Each hoe is chain driven from the shaft. The hoe units are individually mounted and spring loaded. Depth of work can be adjusted independently, and so can the hoe blades.

Technical Page
EDITED BY ARTHUR BENNETT AND TED SCHOETERS

HEATING



licker-free flame

Design of a gas burner and gas pilot assembly. For launched by Dunlop the name of Thermamax degrees C, the burner is made from a stainless material selected for corrosion resistance. High temperatures demand high nickel materials which allow the burner to be subjected to temperatures well above 1,000 degrees without physical damage. Design of the face plate is easily changed to cater for high fuel flows or for situations where a short, broad flame pattern is required. Complete combustion can be achieved with a clean blue flame at 2 per cent excess over the theoretical air requirement. A burner can also be placed in a high velocity air flow with thousands of per cent excess air to produce clean warmed air for drying, curing, etc. Any conventional fuel from natural gas to refinery fuel can be used without having to modify the burner. Noise reduction is also remarkable, sometimes 50 per cent less than existing equipment. More on 01-830 6700.

ELECTRONICS
Micro chip bridges

FILM hybrid circuits bare chip active components are now available from Bracknell. The chips are bonded to gold conductor and many devices may be mounted. Connections from chip to site are made with either wire or thermocompression using 0.001 in. dia. gold or by wedge bonding aluminium wire. The completed substrates are solder sealed into metal packages. All packages are leak tested after sealing using a helium mass spectrometer. For commercial applications plastic encapsulated circuits can be made—much of the present production is for use in military or aerospace equipment. The company says that environmental testing to BS 2011 has been carried out on typical circuits. More from Technograph and Telegraph, Easthampstead Road, Bracknell, Berks., RG12 1NW (0344 24321), a Technograph Group company.

Data General welcomes IBM to the minicomputer market.

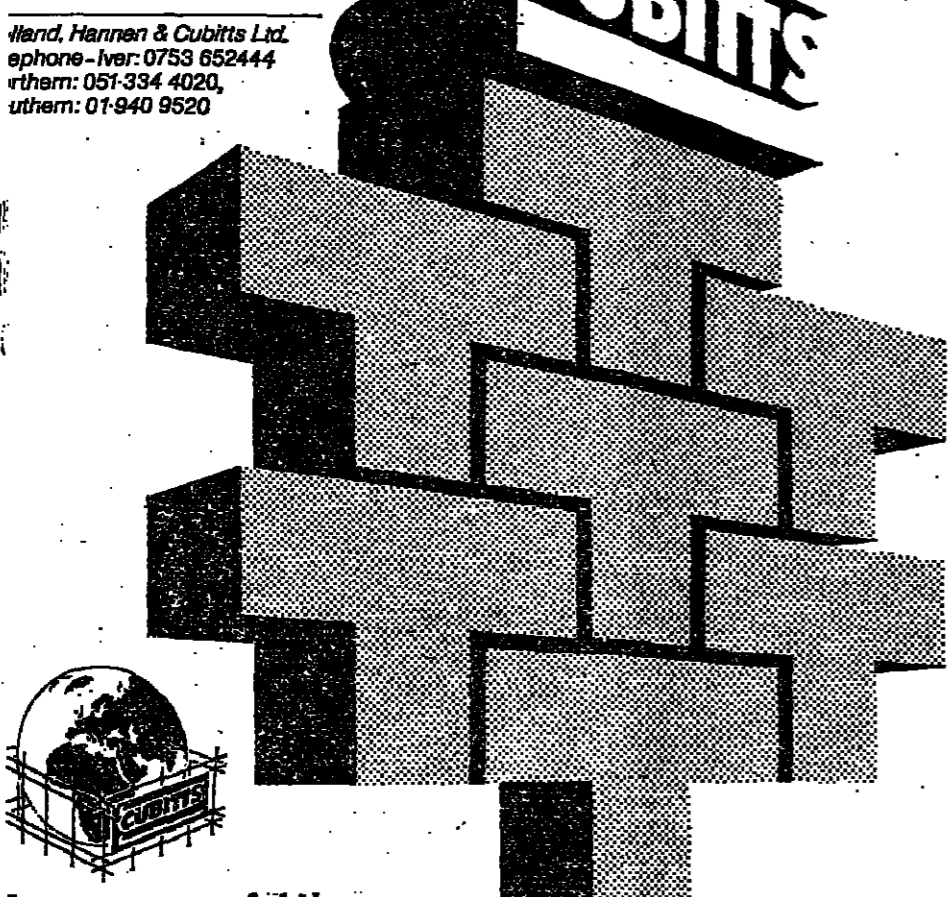
Who says you can't teach an old dog new tricks?

Using the minicomputer to complement the big mainframe is nothing new. It's an idea that we started pioneering more than eight years ago. And today, there are over 25,000 Data General minicomputers in stand alone systems and in distributed processing networks. And they're doing applications like data processing, process control, computation and data communications.

It works. You can ask any one of our more than 6,000 Data General users in more than 33 countries around the world. But don't take our word for it. Ask Marketing Communications for the book that tells the whole story of why 25,000 Data General minis are economically doing the job that big computers can't. Just fill out the coupon and we'll show you some new tricks.

TOPPING OUT

The 'topping out' ceremony traditionally marks the successful lifting of a structure. In a sense,armac have topped out air construction capability with the recent acquisition Cubitts. It is an over-simplification to say thatarmac are best known for roads and Cubitts buildings. Nevertheless,armac are great construction engineers and Cubitts are great builders. Now, with the strength ofarmac behind them, Cubitts are tier placed than ever to continue their historic role of Britain's best own builders.



More resourceful than ever

ROVACABIN - The New Name in Instant Accommodation

Room to grow? ROVACABIN answers your need quickly, smartly, comfortably and above all... Instantly. The new ROVACABIN range gives you wheel or jacked office units complete and ready for immediate use. ROVACABINS are designed for businesslike efficiency in environment. They link or stack. And they're available wide to go where you want to grow. Interested? Then send the coupon for ROVACABIN info.

worth looking into **Youngman ROVACABIN**

Data General

Show me. Name _____ Title _____

Company _____ FT 21/2

Address _____ Tel _____

Data General Limited, Westway House, 320 Ruslip Road East, Greenford, Middlesex, UB6 9BH, Tel: 01-578 9231
Offices also in Birmingham, Manchester and Glasgow.

Marketing Communications, Data General Holland BV, Van Gijnstraat 17, Rijswijk (Z.H.), Nederland. Tel: (070) 90 76 94.
Marketing Communications, NV Data General SA, Blvd. de Woluwe 46, Bte. 5, 1200 Brussels, Belgium. Tel: (12) 76 23 263.

HOME NEWS

Unemployment could reach 1.75m. by year-end

BY PETER RIDDELL, ECONOMICS CORRESPONDENT

THE GLOOMY outlook for unemployment is likely to be underlined again to-morrow when the publication of the jobless figures for mid-February...

'Import bill may be too high'

BY SAMUEL BRITTON

AN OFFICIAL inquiry is being made by Government with the publication of the 1967 devaluation. The under-estimation then amounted to £800m.

'Inflation fears could lift interest rates'

INTEREST RATES could be forced up during the next quarter as a result of inflationary fears, the latest business forecast published by the Charterhouse Group argues.

New bid to speed Marathon order

BY OUR OWN CORRESPONDENT

FEARS THAT the entire workforce at Marathon's Clydebank drilling rig yard could be laid off while the Government and the British National Oil Corporation decide which type of rig to order...

Early pensions plan may bridge a gap

BY ERIC SHORT

THE SUPERANNUATION funds payments start before the normal age is reached. The Government has made it clear that it cannot lower the retirement age within the foreseeable future even if it wanted to do so.

Rates rise to pay Clay Cross debt

BY GILES MERRITT

RATEPAYERS in Clay Cross, Derbyshire, will have to pay a debt of £23,000 left by the town's former rent rebeller...

Lynch to seek U.N. role in Ulster

BY GILES MERRITT

MR JACK LYNCH, Ireland's Opposition leader, has suggested Northern Ireland is a speech clearly intended to outline his party's political platform in the forthcoming General Election.

Loyalists offer to talk to Provisionals

BY OUR BELFAST CORRESPONDENT

LOYALIST PARAMILITARY groups in Ulster have proposed peace talks with the Provisional IRA. They say the talks could lead to an end to violence and the withdrawal of British troops to Northern Ireland.

Government 'is costlier'

THE GOVERNMENT has been accused of being the "highest price government of all time," Mrs. Sally Oppenheim, Conservative MP, said in a week-end speech that Labour's mismanagement of the economy was entirely to blame for the rate of inflation.

Air shuttle services may be extended

BY MICHAEL DONNE

BRITISH AIRWAYS is discussing with Aer Lingus setting up a no-reservations shuttle service between London and Dublin on the lines of its successful London to Glasgow and Edinburgh operation.

BSC chemicals profit boost

BY GILES MERRITT

THE BRITISH STEEL Corporation's chemicals subsidiary is heading for a handsome profit in the financial year which ends next month.

Price of strike newspaper up

THE PRICE of the Northern Shire Evening Telegraph, at Kettering, goes up to 4p after falling at 3p since the lists went on strike 11 weeks ago.

Williams & Glyn's knows that businesses need bank managers who understand business

When inflation changed the rules of financial management, it also changed the relationship between companies and their banks. Today companies look to their banks as never before for co-operation and advice.

- Five ways to more profitable business
1 Development Capital
2 International Equipment Leasing
3 Mergers and Acquisitions
4 Certificates of Deposit
5 Pensions

WILLIAMS & GLYN'S BANK LTD
The most flexible of the big five banks

National Savings tops £228m.

By James McDonald

NATIONAL SAVINGS figures last month were the highest ever recorded with a net inflow of £194.3m. for five weeks to January 29.

Advertisement for CHUBB Integrated Teller featuring an illustration of a man at a teller machine and text describing the service.

معلومات العمل

The Executive's and Office World

EDITED BY JOHN ELLIOTT

Vending machines for food and drink are now more sophisticated but important factors affect the economics of this type of service. Nicholas Leslie reports

The mechanics of catering

LAMB and vegetable or a beef curry served plastic plate from a tin at has been dispensed vending machine may every employee's idea of a mid-day meal. But of the major automatic catering organisations to be believed, this eating is about to grow along with other systems of food dispensing. Whether or not this will be a reality, however, is to assess. Automatic vending machines of the variety now in the U.K. originated in the U.S. where machine dispensing is almost a way of life for the general public and many employees. There are, for example, one drinks vending machine for every 20 employees in the U.S., whereas the British has one for every 150 employees.

On the other hand, following rapid growth in the early 1970s, the automatic vending industry has been on something of a plateau for several years. And the Institute of Catering states that vending is still in a state of decline. There are many reasons for this, but the main ones are the high cost of machines, their unreliability in relation to a catering budget, and the long-term human resources involved in the operation of vending machines. It is also worth noting that the introduction of vending machines has to be considered very carefully in terms of whether it will be profitable to its workforce. The main arguments for automatic vending is that it is more economical way of providing food and drink. In the beverage machine, the beverage machine takes the place of the tea and coffee machine, despite the fact that the machines are not very reliable and "get stuck" operators. Such machines do not provide the back-up services for which many catering companies are reluctant to invest. Recently, sales of food vending machines have been hampered by the enormous increase in costs of traditional vending machines, particularly those which dispense hot food. The falling market for vending machines has also been hampered by the fact that the Industrial Society survey is confirmed by Mr. Elias Fattal, a director of Roboserve, a major distributor of vending equipment, and by Sutcliffe Catering, an industrial catering contractor. Both cite the "betting value for money" aspect of vending as one of the reasons for the trend.

Hot-meal machines take vending into the catering arena, for example where meals are prepared and then frozen for storage. This, in turn, has led to the development of vending machines which dispense hot meals in plastic containers. These are then transferred to plastic containers and then transferred to plastic containers and then transferred to plastic containers.

transfer into refrigerated vending machines. From there, they can be removed by an employee and heated rapidly in an adjacent microwave oven. An obvious advantage of these is that the number of kitchen staff can be reduced substantially, since food can be prepared throughout a full working day instead of having to be compressed into a short production time. In addition, food stored on plates in refrigerated vending machines, such as GKN Sanker—the U.K.'s biggest vending machine producer—and National Vendors supply this type of machine, which keeps meals in cans with ring-pull tops at a temperature of above 150 degrees Fahrenheit for up to seven days. It is difficult to be precise about costs of hot meal vending machines, since this will depend largely on a company's total requirements. But, as an ex-

ample, a very different picture in Britain, where, at the end of the 1960s, only 20 per cent of installations was handled on this basis. Now, while such operators have been joined in competition by the industrial caterers setting up vending divisions, there is still a substantial percentage of vending carried out by the independent owners of machines. The more obvious benefits of vending machines have to be balanced against the disadvantages. The scale of unreliability encountered in the past has been reduced, but it is still a problem and regular servicing is essential to keep a machine in working order. The advent of electronics has helped improve reliability. Wittenborg, the big Danish manufacturer of vending equipment, claims a failure rate on electronic coin mechanisms of 3 per cent, compared with 30 to 40 per cent on mechanical types. Electronics has also helped to make it possible to present a greater range of products in a machine and to ensure that temperature control and mixing mechanisms in beverage machines are more constantly accurate. But despite this, the scope of vending is still limited. Microwave ovens, for example, will not heat certain types of food and the food that they do heat has to be very carefully prepared since the ovens heat different items at different rates. Thus, for example, some vegetables should be slightly undercooked, and sauces should be made thicker than usual to stop them boiling. Then, there are parallel restrictions with hot cans—potatoes and cabbage cannot be included, for instance. It is likely that some of these barriers on food types will be overcome fairly soon. Certainly food companies and vending operators work constantly to widen the choice of fare. On balance, it seems unlikely that hot food vending will displace traditional canteens, but it may well grow as a sizeable adjunct. The decision facing companies, therefore, is what type of supporting facility vending should be.

Another application is for refrigerated vending machines plus a microwave oven, to be located at several points within very large factories, with supplies coming from a central kitchen. Many different selections can be housed in this type of machine, and each one can be large enough to cater for upwards of 100 people. Machines producing hot meals in sealed cans, on the other hand, are widely thought to be more readily suited to small companies with up to 120 or so employees, where it may not be economical to set up full canteen facilities. Companies by specialist operators, but it is

available, for example, to a plus microwave oven, could be installed to cater for up to 60 people on a staggered basis for about £3,700. Also, because convenience foods are normally used for this sort of catering less preparation is required and thus less space for storage and equipment is needed. Mr. Douglas Lee, catering adviser to GKN Sanker suggests that companies should first decide how much they are prepared to invest in catering at the present time and for the next three years and also what the employees are likely to be able to afford. Different costings can be applied to vending since machines can usually be hired, leased, or bought outright, with the servicing carried out by the vending machine organisation or the company's own mechanics. Then again, food preparation may be done internally or by an outside contractor. In the U.S., well over 90 per cent of vending is looked after by specialist operators, but it is



Two types of hot meal automatic vending: Top, food dispensed hot in cans and then transferred to plastic dishes; bottom, meals stored in refrigerated cabinets (right) are heated in a microwave oven (left).

EXECUTIVE HEALTH BY DR. DAVID CARRICK

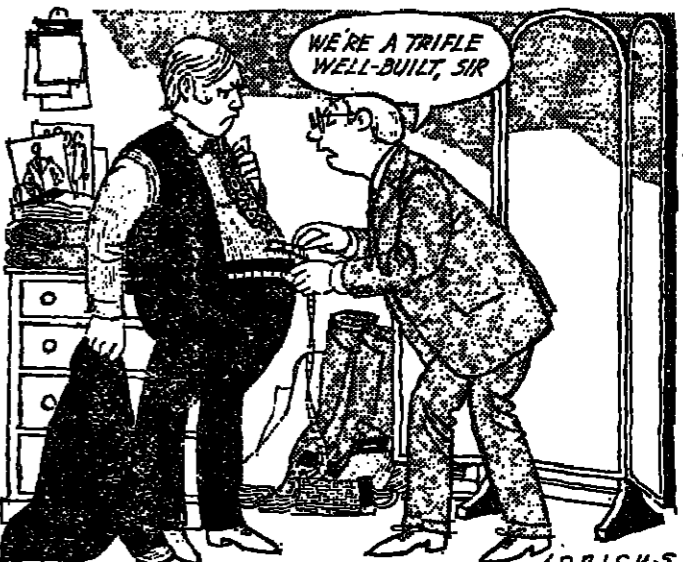
The serenity of being fit

SEVERAL years ago I was invited to contribute a weekly medical column for a national daily newspaper which was about to be launched. I was interested, particularly when the amiable and venerable editor said that the policy for the new paper was to be "different."

A tall order, I thought, for all departments from news to features; but how, I asked, did he fancy that a medical column could be different? Fertile as one's imagination might be, such a task would be impossible unless one invented new diseases.

"Ah!" said the old chap, "that's the whole point. I don't want articles on illness: I want a weekly column on health!"

I was lost for words for a while but then said that the good editor looked to me as though he had been in Fleet Street for at least 40 years. Aggrieved, he said: "Forty-five, if you don't mind."



I apologised and pursued my theme. "Do you really believe?" I asked, "you being a man with nearly half a century in the Street, that readers want to read about being well? You would hardly print a news story about a happy wealthy, non-old-age pensioner who had not broken his leg, would you? So how can one hold attention on the lack of disease?"

"Well you have a point," he conceded, "but that's what the proprietors want." They never got it and, not surprisingly, the paper that was to be different did not last very long.

Nevertheless, some people do crave for advice as to how to be fit, a laudable desire so long as their true motive is not for eternal youth but for the best ways by which an ageing vessel may be employed to a maximum degree of efficiency. Business men and women

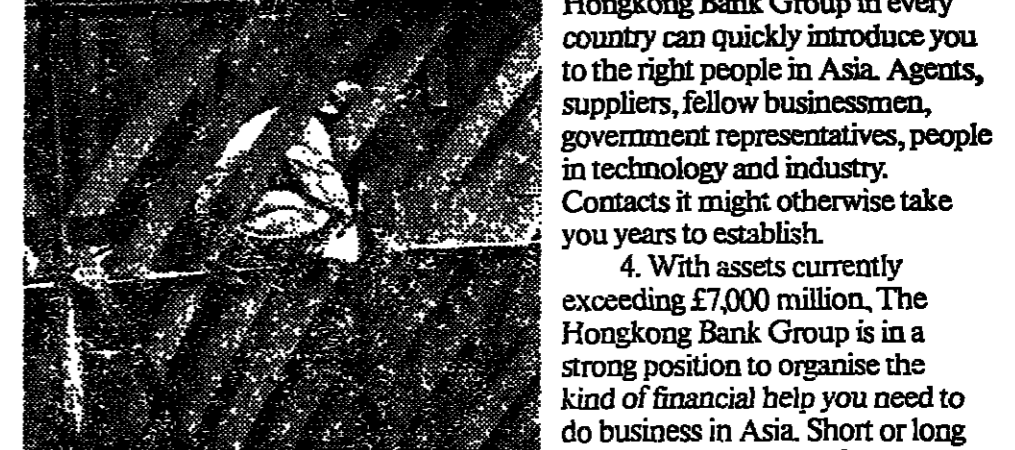
tend to develop sudden desires for "fitness" when criticised by their spouses; or when they find running for a train has lost its savour; or when the diplomatic tailor uses the dreadful term "well-built." The physicians of the 18th century recommended horse-riding—something not difficult to achieve when there was no other form of transport—but they qualified this by insisting that such should be of a regular nature and not of an immoderate character. It is in that word "regular" that the secret lies. Regular walking for even short distances instead of flopping from office chair to car seat or climbing stairs instead of using lifts—both are valuable. Sudden outbursts of physical violence such as occasional games of squash or physical jerks tend to damage surprised muscles and so produce yet more enforced inactivity. Patent engines are used regularly by the obsessive: I know a man who lost pounds with a "rowing" machine—the wrong variety of pounds as he broke three ceiling joists. Regular meals of a modest nature (with an occasional indulgence) hold weight steadier than starchy snacks. Sensible drinking in a quantity that neither dulls the wits nor dampens the appetite is not sinful. Avoiding the reading of or listening to the ceaseless flow of frightening information about the dangers of anything pleasurable, prevents unnecessary anxiety which itself encourages intemperance. The cultivation of serenity of mind helps towards general good health. A deliberate braking against the impulsion to rush and to worry—a curiously pointless exercise—should be applied. And the knowledge that there is no such thing as an angry wasp, only a frightened one, may induce more placidity in the man who shouts and rants and endangers his blood vessels. None of this advice will make Olympic athletes nor centenarians out of middle-aged executives; but it may help to achieve felicity which, in itself, is a matter most fitting.

TSA trains record number of people

THE NUMBER of people Opportunities Scheme (TOPS) October showed that 70 per cent had found employment within three months of completing their courses. After allowing for people who had withdrawn from the labour market, only 20 per cent of people on TOPS courses in the summer were still looking for jobs or were involved in training when the survey of TOPS trainees last survey took place.

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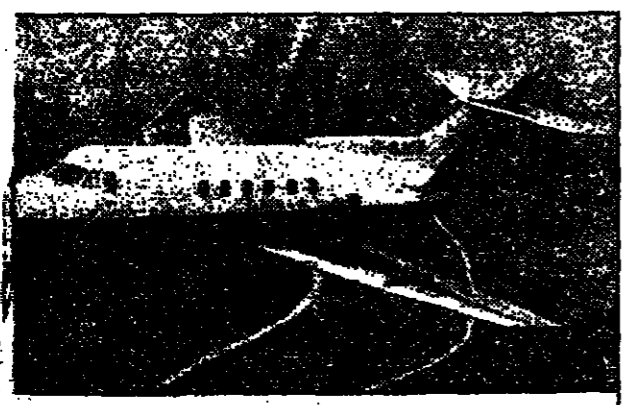
Company car tax guide

A NEW tax structure for company cars contained in the 1976 Finance Act comes into effect on April 6 and, anticipating the event, Leyland Cars has produced a booklet to give guidance on how it will affect company employees and directors. The booklet, which will be available through all Leyland distributors and dealers, makes it clear that it does not intend to include the salary of the employee, the mileage done for business purposes, the engine guide.

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MONDAY, FEBRUARY 21, 1977

The re-entry problem

THE CHANCELLOR, Mr. Len Murray of the TUC and Mr. John Methven of the CBI displayed an unusual unanimity on Friday when they spoke of the necessity to find some effective successor to the present restraints on wage increases.

Faced with such problems, it is easy to wonder whether the effort to achieve a further stage of restraint is worth making. The results to date do not appear impressive, and the cost as the Employment Protection Act has made unemployment worse: pay rigidities cause inefficiency as well as resentment, and perhaps most insidious, a TUC influence over policy which has produced little to satisfy union members, but has sapped confidence both in the economy and in the powers of decision of our elected Government.

Orderly bargaining
The leadership of the trade unions appears in some ways to be recognising this more readily than the Government. When Mr. Murray gave his warning that a further wage explosion would gravely hurt ordinary families, through still faster increases in prices and unemployment, he not only stated the case for persisting with rational restraint, he implicitly put the argument against a political bargain. If the leadership now recognises that orderly bargaining is in the interest of union members, as it most emphatically is, then that should be an end to the matter: employment and living standards will be higher if costs can be kept in check, and the unions need not be bribed to follow their own interests. Their refusal to discuss restraint ahead of the Budget is also helpful. Mr. Healey's freedom to cut taxes is constrained by his

Mr. Carter and the dissidents

"BECAUSE WE ARE FREE" President Carter said in his inaugural address. "we can never be indifferent to the fate of freedom elsewhere." He has said the same thing again in his letter to the Soviet dissident, Professor Andrei Sakharov. What is new about this is not the sentiment—it would be very difficult and indeed unnatural for an American President to say anything different—it is the fact that President Carter is putting it into practice. The letter to Professor Sakharov was in direct response to an appeal from the latter for the President "to raise his voice" on behalf of those intellectual dissidents who are persecuted in the Soviet Union and Eastern Europe. That is exactly what President Carter has now done and it is exactly what Vice-President Mondale will be doing when he receives the exiled dissident, Mr. Vladimir Bukovsky, this week.

Two questions
All this is in marked contrast to the time when Dr. Kissinger as Secretary of State advised the then President, Mr. Ford, not to see Aleksandr Solzhenitsyn on the grounds that such a meeting might offend the Soviet authorities. Clearly the change is deliberate policy and, as such, it raises two major questions. The first is whether it will prejudice other U.S. policy objectives such as the attempt to reach a second strategic arms limitation agreement. The second is whether such a policy will actually help the dissidents. Neither question is particularly easy to answer and indeed both may be at this stage unanswerable. On the issue of the Soviet-U.S. relations in other fields, however, it may be argued that both sides have an interest in, for example, a SALT II accord, and that the Soviet interest will remain unchanged by whatever the U.S. Administration has to say about human rights. It may be different in areas such as the Middle East

A grievous loss for Labour

THE death of Anthony Crosland has rightly been seen as both a personal tragedy and a major public calamity. It is poignant to see a man of great vitality and courage being robbed, after many setbacks and disappointments, of the crown of his career and of the prize he had always wanted most—the Exchequer—just when it was finally within his grasp.

The loss to British politics is equally distressing, but it is much harder to evaluate properly. For Crosland did not fit easily into the normal stereotypes of political achievement. He was certainly a better than average departmental Minister, but he was not really a great one. His intellectual fastidiousness made him slow to make up his mind. His best was the enemy of his good.

At the Foreign Office, he was making himself at home by laborious stages, but a man incapable of superficiality was

bound to make hard-pressed officials legitimately impatient, and would surely have made the Treasury equally so. Again, while he was an immensely attractive figure, he was not a charismatic one, being too self-conscious and too honest to play to the gallery. He was a marvellously lucid expositor of complicated ideas, and his intellectual authority in the House of Commons was complete. But he was never a great persuasive orator.

He had many political friends and admirers, but acquired few followers—mainly because he never stood for something simple, and was not prepared to reduce the subtlety of his own position to the Left-Right simplicities that most potential allies required in order to fight the internal battles of the Labour Party during the last 10 years.

It would appear, then, in conventional terms, that Mr. Callaghan's position this week

was not a member of the National Executive, and the Left-Right balance of the Cabinet can easily be restored. Crosland belonged to the Centre-Right, and that is precisely the spectrum of opinion in which most of the plausible candidates for promotion happen to reside.

Yet this reassuring assessment of the political situation leaves three crucial points out of account—all of them facets of the single, inescapable truth that there is no substitute anywhere in sight for the intellectual distinction and integrity which Crosland brought to the Government. In the first place, the quality of many Government decisions will be immediately and perceptibly reduced. Whitehall is in many ways a tug-of-war—or a machine which runs on the creative tension between Ministers and officials.

The removal of Crosland's formidable scepticism and refusal to accept rubbishy arguments in Cabinet and in its committees is bound to be serious. The second point is that Crosland was the last major Gaitskellite on the political scene. As a label, of course, this no longer means very much. But it is significant in the sense that he was the last survivor of the post-war generation of political intellectuals whose modern adaptation of Fabianism made socialism not only tolerable but imperative for a large section of the intelligent public. Without him, the fight of the middle-class towards the Right is likely to become even more precipitate.

Finally there is the Labour Party itself. Crosland's form of democratic socialism was, as he was always ready to acknowledge, only one of a number of legitimate approaches to left-wing politics. It was, moreover, under heavy attack from the far Left when he died, and the Labour Right felt uneasily that

Social democracy's gifted theorist

MR. ANTHONY CROSLAND, appointed Secretary for Foreign and Commonwealth Affairs by Mr. Callaghan last April, was one of the most lucid and effective of Labour Party intellectuals but he never really fulfilled his great potential.

He had one of the best records of any departmental Minister and a very varied career behind him ranging from Minister of State for Economic Affairs to Secretary for Education and Secretary for the Environment, but because of his lack of a Labour Party power base he came a disappointing bottom of the poll for the party leadership last March.

Nevertheless, his influence was considerable, particularly among the younger MPs in the centre and Right of the Parliamentary Labour Party. Since the publication 20 years ago of his book The Future of Socialism he was regarded as one of the most significant leaders of the Social Democratic wing of the party.

His death, at the age of 58, robs the Cabinet and the Labour Party of a powerful intellect. Charles Anthony Raven Crosland was born in North London to middle-class parents. His father was a senior civil servant and his mother an outstanding scholar and pioneer of women's education. His background was one of extreme dissent. His father was an active member of the fundamentalist religious sect, the Plymouth Brethren, and Tony Crosland never ceased to believe in the virtues of hard work and political radicalism instilled into him at home. He did not object to being called arrogant but he objected very strongly to being called lazy.

At Highgate School he won a scholarship to Trinity College, Oxford, where he took a First in Philosophy, Politics and Economics after the war, during which he was in the Royal Welch Fusiliers before transferring to the Parachute Regiment where he became a captain. At Oxford he was President of the Union.

A Fellow at Trinity and lecturer in economics from 1947 to 1950, he was brought into Labour politics by Hugh Dakin and became MP for South Gloucestershire in 1950 but lost the seat five years later. He made an immediate impression in the House of Commons with his maiden speech when he attacked the Labour Government's Budget. It was customary in maiden speeches not to throw stones at the Opposition, Mr. Crosland pointed out, but there was no convention preventing attacks on one's own side.

It was in these years that Mr. Crosland concentrated on his book The Future of Socialism which appeared in 1956. This tried to put across the message that Socialist intellectuals had been too obsessed with economics. What really mattered was not ownership of industry as advocated by the Left-wing, but control. In his view the road to Socialism lay not through Clause 4 of the Party's constitution but through high public spending, particularly on social welfare, redistribution of wealth through taxation, and reform of the education system.

Largely because of the book, Crosland became something of a cult figure on the centre-right of the party and was a significant influence on his own, and the next, generation of Labour politicians including Shirley Williams, Roy Hattersley, William Rodgers and his own deputy at the Foreign Office, David Owen.

After losing his seat at Gloucestershire South through redistribution he became secretary of the Co-operative Commission and got to know Hugh Gaitskell well, performing the role of candid friend rather than



Tony Crosland

Yes-man. Partly through Gaitskell's influence he was picked as candidate for Grimsby and was elected in 1959. Immediately after Gaitskell's death he became a prominent supporter of James Callaghan in the leadership contest with Harold Wilson and George Brown.

His long and varied ministerial career began in 1964 when he became Minister of State to George Brown at the newly-formed Department of Economic Affairs. The following year he entered the Cabinet as Secretary for Education and in 1967 became an enthusiastic President of the Board of Trade. When Labour lost office in 1970 he was Minister for Local Government with responsibilities that were later gathered into the portfolio of Environment. After election in 1970 he became

Wilson opposed it, and in 1970 he was the most outspoken critic within the Cabinet of Mr. Roy Jenkins, then Chancellor of the Exchequer. In the latest round of public spending cuts, fought through the Cabinet in December, he played a major role in the battle to prevent excessive cuts. Although he reluctantly accepted the need for cuts, he recently claimed he had been proved right by the revised Treasury figures.

On the surprise resignation of Harold Wilson last March, Mr. Crosland faced an intriguing choice—should he stand himself, or should he once more support Mr. Callaghan this time, the favourite. In the event he was one of the first to throw his hat into the ring and his poor showing (he received 17 votes and came bottom of the poll in the first round) was probably partly due to the number of other right-wing and centre candidates.

But the contest undoubtedly also reflected his lack of a wide following within the PLP. For in spite of his intellectual standing he had failed to make much headway in the personal campaign for a party base which he had launched in 1970. After the 1970 General Election defeat he was elected to the Shadow Cabinet with a surprisingly high vote, but his persistent efforts to get on to the Labour Party National Executive were unsuccessful and he failed to develop close contacts with major trade union leaders. There is little doubt that he also lost much of the respect of his friends on the Centre and Right of the party during this period, particularly over the issue of entry into the Common Market. He tried to follow the party's attitude of doubt about Europe, but it did not ring true to many of his pro-Market

friends were deeply offended what they regarded as his loyalty. Crosland's argument was that he acted in the cause of party unity but his reputation as a man of principle was doubtfully tarnished. His friends later charged with failing to stand firm on the issue of the Clay Cross colliery's who defied the provisions of the Housing Finance Act, but claimed that he took the course that would do least harm to the Act and to the Party.

He was not, in other words, averse to political compromise and although his critics, or should he once more support Mr. Callaghan this time, the favourite. In the event he was one of the first to throw his hat into the ring and his poor showing (he received 17 votes and came bottom of the poll in the first round) was probably partly due to the number of other right-wing and centre candidates.

It is perhaps surprising that a man with such a forceful personality, alternately engaging and prickly, should have so little impact on the imagination. In many ways he was an eccentric—he once allegedly wore carpet slippers greeting visiting statesmen—usually insisted on wearing Match of the Day on TV when invited out to dinner even on one occasion entertaining an important foreign ambassador—but image that took hold was of a rather haughty intellectual.

In the hope of getting a privacy and time to write, Crosland bought a country house in Oxfordshire, where he spent a London house in Hat Park. Mr. Crosland was married to Susan Barnes, an American journalist and writer ofceptive political profiles.

Richard Ev

MEN AND MATTERS

Happy New Year

Trafalgar Square throbbled with the sound of gongs yesterday as Soho's Chinese community celebrated the start of the year of the snake with a traditional Chinese Dragon dance. It was a big success with crowds of on-lookers hemming in the square and the route through the narrow streets of Soho to Chinatown.

This New Year has been particularly well celebrated with the BBC's Radio Three devoting three hours to things Chinese on Saturday night, including a solid half hour of Chinese poetry—in Mandarin. All fascinating stuff, particularly the account of how the revolution has changed many of the forms but less of the substance of such traditional holidays. It appears that the face of Chairman Mao replaced the traditional kitchen God on the calendars which the Chinese exchange as gifts at New Year. The net result is that Chairman Mao is better known as the new Kitchen God in many outlying country districts.

One of the more drastic changes which came with the revolution was the eclipse of the Dragon Dance in China itself. Now performances are restricted to Hong Kong and Chinese overseas communities. Officially China changed to the European calendar back in 1912 but in practice the old lunar calendar retained much of its hold in the country areas of this still largely agricultural and rural nation.

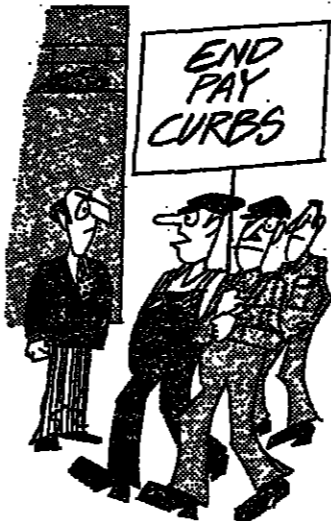
Even so the Chun Jie, or Spring Festival as it is now known, is still the most important Chinese holiday, indeed for most Chinese the four-day break is their only official holiday, although this is extended to a fortnight's reunion holiday for workers separated from husbands or wives.

Phone me

Sir Charles Villiers, the man who took over the hot seat at British Steel from Monty Finiston recently, has now got a new job as an answering service. Or at least that is the gist of the series of advertisements currently being run by BSC (Industry) Ltd. set up by Sir Charles to try and attract new industry into those areas singled out for steel plant closings as part of the Corporation's modernisation drive.

Cynics say the new company is only a cosmetic job, set up to do what Government and the industry have been trying to do anyway in order to soften the pill of inevitable closures. But to underline the importance he attaches to it Sir Charles has invited all those interested in what British Steel somewhat euphemistically describes as "some of the best industrial resources in Britain" with everything you need for profitable growth" to telephone him direct. So we tried.

He is not exactly hanging on at the end of a line waiting for your call, but after being courteously transferred to the mar-



"Do you realise that soon we'll have to eat cake?"

response to the frustration among accountants working in industry about the way accounting standards are worked out in the U.K.

Over 80 per cent of Chief Financial Officers in the U.K. are chartered accountants and 92 per cent. have some form of accountancy qualifications. But Custis, and a growing number of accountants in industry, believe that they are currently grossly under-represented in the Accounting Standards Committee, the professional body which is at present heavily weighted in favour of the practising side, and the big City accounting firms in particular.

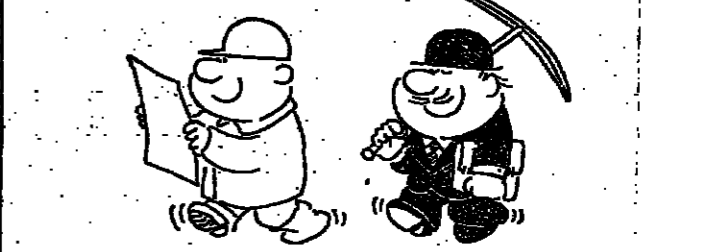
The result, according to some members of the Midlands group, which includes Finance Directors from Glynwed, Tube Investments, Lucas, GEC and Rolls-Royce Motor Holdings, is that some accounting standards are too theoretical and out of touch with reality. They cite proposals on stocks, deferred taxation and, of course, the Roperth Reports' hobby horse—infation accounting. Custis himself believes that the first inflation accounting adjustments should be limited to the main profit and loss account adjustments.

Finance men

A world-wide conference of Financial Executives professional bodies is due to take place in Dublin this spring at which the U.K. will be conspicuous by its absence, as there is no U.K. equivalent to the American Financial Executives Institute. All this may change however if GKN's Finance Director Paddy Custis has his way. Custis has just set up the Midlands Finance Directors Group in

Apocryphal

A French balloonist crossed the Channel and landed in an isolated field. When he asked a passing stranger where he was he was told: "You're in a wicker basket in a field." The Frenchman said: "You're an accountant, aren't you?" Replied the man: "How do you know?" Said the Frenchman: "Your information is typical of an accountant—accurate but useless."



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FINANCIAL TIMES SURVEY

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THE COMPUTER INDUSTRY

There is evidence of new growth in European computer development, and this, coupled with EEC attempts to curb the monopoly of the major U.S. companies is giving the European manufacturers fresh hope. Now it is the European companies which are beginning to show the benefits of state involvement.

THE dismal Johnnies in the industry who have the deep-rooted conviction that Europeans will be able to stand up to competition, there is a story in a study that has been over-looked in the year-end rush. The study is a survey of the results of a survey of users of large computer systems and allocated ratings on a weighted basis running from (equals excellent) down to (equals poor) for ten of the equipment from operation and reliability of programming and speed of maintenance.

CDC users were applying their equipment primarily to scientific operations and the remainder principally to business work. That having been said, however, what has to be underlined in the study is that in the three important categories "Responsiveness of maintenance services," "Effectiveness of maintenance services," and "Technical support," Amdahl led, followed by NCR, DEC, Control Data and IBM. But these are precisely the points on which so many machine choices have been made in the past, the argument being that "if number one can't do it, who can?"

But it has grown unevenly despite the efforts of the U.S. and other Governments to regulate expansion and police operating practices. It took IBM 60 years to reach \$1bn. profits and only six (1970-1976) to go to \$2bn, this last on a turnover exceeding \$16bn. Over half is generated outside the U.S., thus the corporation is making a handsome contribution to what otherwise would be a far worse balance of payments in the U.S. Yet the U.S. Commission on the preferential purchasing policies member states have practised vis-a-vis the computer companies they are supporting. This support was necessary because of the gross imbalance in development on opposite sides of the Atlantic. The U.S. moon shot cost around \$35bn. Most of the time, companies and research centres working on this vast project were operating at the limits of current know-

ledge. This means that research and development were taking 50/60 per cent of expenditure. It has been suggested that computing facilities within the space programme organisation and its supporting contractors accounted for around half the R. and D. figure. Suppose that the figure is half that—it would still mean that U.S. agencies and companies working for them bought or leased \$3bn. worth of equipment during the build-up to Apollo. If the assumption is out by a factor of two, and it does not take into account work for military purposes, it is obvious that until President Nixon turned off both the weaponry and

NASA funds taps in 1972, the larger U.S. manufacturers were enjoying massive home market support, enjoying a massive advantage over the developing computer industries elsewhere in the world. In 1956, for instance, U.S. defence expenditure on computers was running at \$800m. a year, half of which went to IBM. What the European Governments have spent individually to keep a national company in

version work to do, albeit aided by a number of significant technical advances, including microprogramming made since then. In Britain, ICL has received its last support money from the Government in respect of the merger with English Electric and the creation of New Range, and starts repayment next year. But the success of its small business machines and the acquisition of Singer which gives it a base

2904, erroneously regarded as a small business system though it can go up to mid-range level, and the three machines so far announced at the top of the series—the 2950, 70 and 60—and the 2950 which will be launched very shortly. These are systems in the £400,000 to £2m. and more class. The important point is that the company now has a form of market base through the Singer deal and a manufacturing centre, which, starting from scratch would be enormously expensive to establish.

The one stumbling block could be in learning how to market "small equipment" and training a new sales force to do it, remembering that a complete office computer capable of running an average business now costs less than a Rolls-Royce Corniche. ICL is not the only U.K. organisation to tackle the U.S. market. Logica, a leading software house which has made a name for itself in solving difficult communications problems, has set up a U.S. section and expects to do well because Britain has far more experience of very large commercial networks through its banks than America, where only California has allowed the setting up of many bank branches.

Changes

It would be wrong to read too much into the report since it is solely on the U.S. market. However this is a market which has directly suffered all the consequences of the RCA, GE and Xerox withdrawal from computing activities and a bewildering succession of acquisitions and mergers. Its computer users must be among the most cynical and since IBM has enjoyed around a 60 per cent share of the market for as long as the majority of the young data processing staff population can remember, it may well have come to be looked upon as part of the scene, like taxation or the weather, about which people may complain, but cannot influence to any great degree. This is one of the many anomalies in an industry which has grown so fast since the war that it needs no slide-rule to predict the year in which automation will take over as the leader, ahead of cars and petrochemi-

Justice Department is doggedly pursuing the anti-trust suit against IBM and is just about half way through examining the evidence it proposes to present after 226 days of hearings and the preparation of 35,000 pages of transcript. Unless there is a sudden settlement on the lines of the old 1956 consent decree, these figures are likely to double before the IBM defence can be heard, some time early in 1978. The EEC Commission's look at monopolistic practices may thus be an extremely long one and neither actions are likely to have any significant results for several years. In the mean-

time, of course, the Commission has made a number of strictures on the preferential purchasing policies member states have practised vis-a-vis the computer companies they are supporting. This support was necessary because of the gross imbalance in development on opposite sides of the Atlantic. The U.S. moon shot cost around \$35bn. Most of the time, companies and research centres working on this vast project were operating at the limits of current know-

existence is not accurately in the U.S. and Latin America is totally transforming the company which is continuing to exceed export targets, helped by the low level of sterling. Sales centres have been opened in major U.S. cities and says Arnold Jewitt, director of marketing services, ICL will offer the small business machines 2903, 2903/20, the new 10/220 and the 1500 intelligent terminals as well as point of sale equipment. This is selling to a U.S. market sector expected to expand from \$1.4bn. in 1975 to \$2.3bn. in 1980. The job does not stop there, however. ICL is also preparing to sell the larger machines in 2900. This includes the

Arbat (Arbutnot Latham) has sold several million dollars worth of expertise to a variety of American banks who are paying, essentially, for the Arbat software and transaction handling language. Evolved primarily for foreign exchange dealing in real time, the program suites now cover the whole banking area, including Teleprocessing. Arbat is a small company by Logica's standards but the rewards for a good product in the U.S. are still great. Whether ICL will have to face the same barriers that prevented Ferranti from selling an Atlas to a major U.S. defence contractor remains to be seen. After all the complaints made by U.S. controlled companies resident in Britain concerning public sector single tender purchases this would be a supreme irony.

It is true that under the French Government deal with Honeywell, medium-scale processors are exported to the U.S. But in the ICL case, whole systems will go out and the return must be far higher. Jewitt is not perturbed by the apparent immense disparity in the research expenditure between ICL and IBM, pointing out that the latter does its work in house while ICL is reaping the benefit of the development at ICP, the ICL/NCR/CDC peripherals group, the work done by major integrated circuit manufacturers such as Texas and Motorola to keep abreast of IBM and the fact that the U.K. is still a major software centre. The total R. and D. expenditure ICL has access to is thus many times more than allowed for in the accounts. At the same time, Jewitt points out, the bigger the company, the greater the customer inertia. Users do not like radical changes and are becoming increasingly militant through user groups—not only against price rises.

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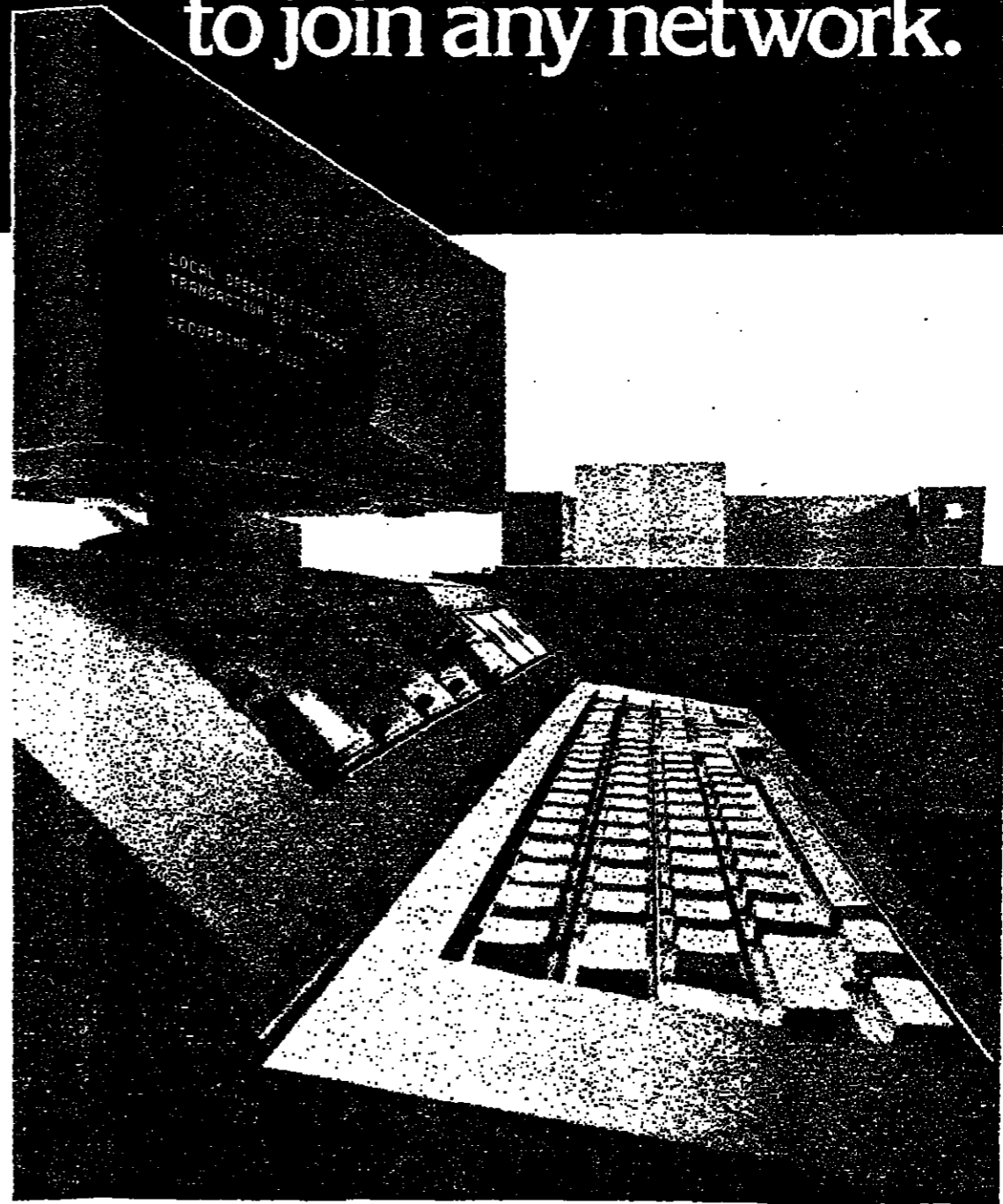
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By Ted Schoeters

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THE COMPUTER INDUSTRY II

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LATE LAST year, Hewlett Packard, who are acknowledged market leaders in calculators and who claim to be second in the mini-computer field, disclosed that a total of \$20m. had been spent to perfect a method of making smaller, faster and more reliable components for use in the equipment it will be selling from about the end of the year.

Silicon on sapphire (SOS) is the name of the process. It had been attempted before in Britain and the U.S. but abandoned by early developers because of the cost and—in one instance—because the product was unsatisfactory, though there certainly would be a military device market for circuits as robust and versatile as SOS is expected to produce.

The pay-off for Hewlett Packard comes when it starts to offer higher performance equipment without increasing prices, or substitutes complex, though reliable, SOS products for a host of other components in a standard product costing less to manufacture.

IBM has also disclosed that after something like ten years of development it has succeeded in building ultra-fast Josephson switches and has developed the technology to manufacture them on an industrial scale, if required. Josephson is an extremely difficult technique if only because the "switch" is just a few atoms thick and what IBM spent in development is a matter for pure conjecture. It cannot be far off the figure for SOS and is probably more but as Dr. R. E. Gomory, IBM vice-president and director of research said—and he holds a \$1bn. a year budget—"If we don't do it, who can?" IBM now has a switching device so fast that contemporary instruments cannot measure it.

When, some three years ago, ICL unveiled the first two big machines in its New Range, a major talking point was the high packing density achieved in the processors because of the way in which the components had been interlinked by using circuit boards with as many as 16 layers of connection planes—this also tidied up the plane to plane wiring (back wiring) very considerably at a time when all competitors' machines still looked like mad spaghetti when the cabinets were opened. This was, however, no cosmetic move by ICL. Far from it. The design of the new range was a highly automated operation

and probably the first instance in the industry where computers were used to design the machines that would supersede them. The close packing means that signal paths could be made that much shorter with a gain in processor efficiency.

But multi-layer boards were not new in Britain. Ferranti had been using them in military devices since the early 1960's and English Electric had elected to use eight-layer platters in its version of the RCA machines it launched under the title System-4. Unfortunately, it took a long time to get its platter technology right, but this was only one of the reasons why it was eventually absorbed by ICT to form ICL.

While other manufacturers tended to treat the advantages conferred by the packing technique as of little significance, it is hard to hide that they all have been introducing it as new models have appeared on the scene.

What the development cost Ferranti/English Electric/ICT is almost impossible to say, but certainly it took many man-years both in the companies and among suppliers, and involved a lot of technology not normally associated with data processing. The conclusion seems to be that in "conventional" data processing all innovation now tends to be extremely expensive and its application to existing lines of equipment comparatively slow.

This state of affairs was predicted some years ago at a London conference: "The Fourth Generation."

Fastest

Ian Barron, then managing director of Computer Technology, and the designer of what was in its time one of the fastest small machines ever built, told an amazed audience that there would be no fourth generation—understood as a new series of machines breaking with their predecessors in many ways. The industry, largely IBM, could not afford it, he asserted, pointing to the company's financing problems with the 360 as justification.

If Mr. Barron had said users could not afford a fourth generation, his audience might not have been so surprised since IBM user investment in software has been estimated at as much as £80bn. He did not rule out new ranges of machines but stressed that they would be little more than improvements on their predecessors, taking in bits and pieces of new technology as it became available.

This, in fact, is what has happened since FS (Future Systems), which IBM was developing as a distributed processing approach to computing, was largely shelved nearly two

years ago. One of the consequences of this moratorium on sweeping changes was underlined by Christopher Strachey, one of the greatest authorities on the man-machine interface, who said that if no one would experiment with a variety of machine architectures the likelihood was that the whole industry would blunder ahead with the wrong machines, with the wrong techniques and a Chinese Army approach to software development.

At the same time, he foresaw that users would abandon the passive role they had taken during the "gee-whizz" period of the early announcements. This has also happened, particularly among the bureau operators, many of whom like Com-Share and TSL do their own maintenance. Meanwhile, run-of-the-mill users, particularly those with the larger machines, are not hesitating to use a great deal of supporting equipment that the original supplier is not keen to maintain, but has to by law.

Since the London conference, which oddly enough did not appear to have much to say about small computers using the latest and fastest circuits, the minis have made deep inroads into the markets hitherto dominated by manufacturers of larger general-purpose equipment.

Minis originated mainly because of the need for extremely fast equipment to control missiles or production lines. While their designers were under sharp compulsion to make them able to accept a fast-running stream of information and act on it according to pre-set instructions and thus seek high performance components, they also had to bring in the highest reliability. One cannot just stop on a turbine or a petroleum refinery and hope to plead a faulty component.

In their 15 years or so of existence, minicomputers have split into a dual market of small business systems and general-purpose equipment which has found its way into such items as cash dispensers, telephone exchange control, machine tools, traffic control and mass spectrometers, just as if the processor was "only another component."

But even treated as a component, it needs software, and this has frequently not been immediately forthcoming in the past since many mini-makers preferred to mass-produce for other manufacturers rather than get bogged down in the end-user market. Turned into a small business machine by a host of entrepreneurs, the mini soon showed its originators that there was a vast untapped market of small companies whose only aid computing was largely shelved nearly two

ability. So, for the past five years, several of the most significant names in minicomputers have spent a great deal of time and effort on getting their equipment software repertoires comparable with those of the large manufacturers. The latter have undoubtedly felt the threat, particularly since the term "distributed processing" was coined by Cdr. Grace Hopper, to describe a situation where several small machines installed at different points in a company where information arises, can process it immediately and send to a similar management machine only data relevant to it.

Demonstrably cheaper (one-quarter to one-third) than the totally centralised solution, this technique is causing a great deal of rethinking by the traditional builders who, to a man, have brought out their own minis—the last being IBM's "Series I."

Reliability

All this is taking place against a background of rapidly declining costs for electronic devices which are progressively becoming more reliable, while the larger producers are faced with the added internal strain that they now can produce the same amount of computer power with one-sixth the labour force that would have been needed ten years ago. It affects the mini-production lines too, but not anything like to the same extent.

Both groups are sharply affected by soaring costs of software and a considerable amount of effort is going into making this ingredient of computing less people-intensive by having it written by computers.

"Adam" machines is programmed to establish what it is required to do by question and answer with each new user and it represents one big step along this road.

This is the appropriate point to bring in the microcomputer, a calculating and correlating device which has been shrunk by photographic reduction methods to go on the surface of a tiny piece of silicon. Software will be its Achilles heel for some years to come though it will be used in millions as a "clever component" to do left to chance limited jobs fast.

Its inception goes back a few

short years to 1971 when Intel of the U.S. was asked by major Japanese calculating manufacturer to produce a complex chip which can undertake a number of novel operations. Intel suggested that it might be better to take a more general purpose unit—a large integrated circuit—with ability to carry out several jobs under instruction.

And so the Intel 4004, born, the first microprocessor, limited in scope but soon to be joined by faster and more flexible micros, the 8080 and 8086 and the Motorola 6800, together with comparable products from every major manufacturer who survived the bitter integrated circuit development and marketing battles of the 1960s.

These devices, which have unit costs of typically £10, £40, are finding their way into products from washing machines and cars to other computers and their peripherals. This last area is an important outlet. IBM, however, Burroughs and NCR are making use of them in the later products.

But they are not easy to program. It has been found that 49 per cent. of applications need over 1,000 man-hours programming effort and a third need more than 50 hours. And the makers of primary production equipment with little or no wish to become involved in such jobs. Kvanme of National Semiconductors has, in fact, gone so far as to say that in time the problem will be solved by putting together the appropriate instructions by attaching several preprogrammed devices to a micro-board.

For the user, this competition is all to the good but it does not absolve computer staff from close and continued attention to developments, particularly in the U.S. and Japan. For small user, wise choices are more imperative than for

since micros, small discs, plays and printers can be together by most electronic engineers to make a "system" at less than half the price of traditional manufacturer ware. Building and running is one thing; maintaining and expanding is only too frequent. Ted Schoen

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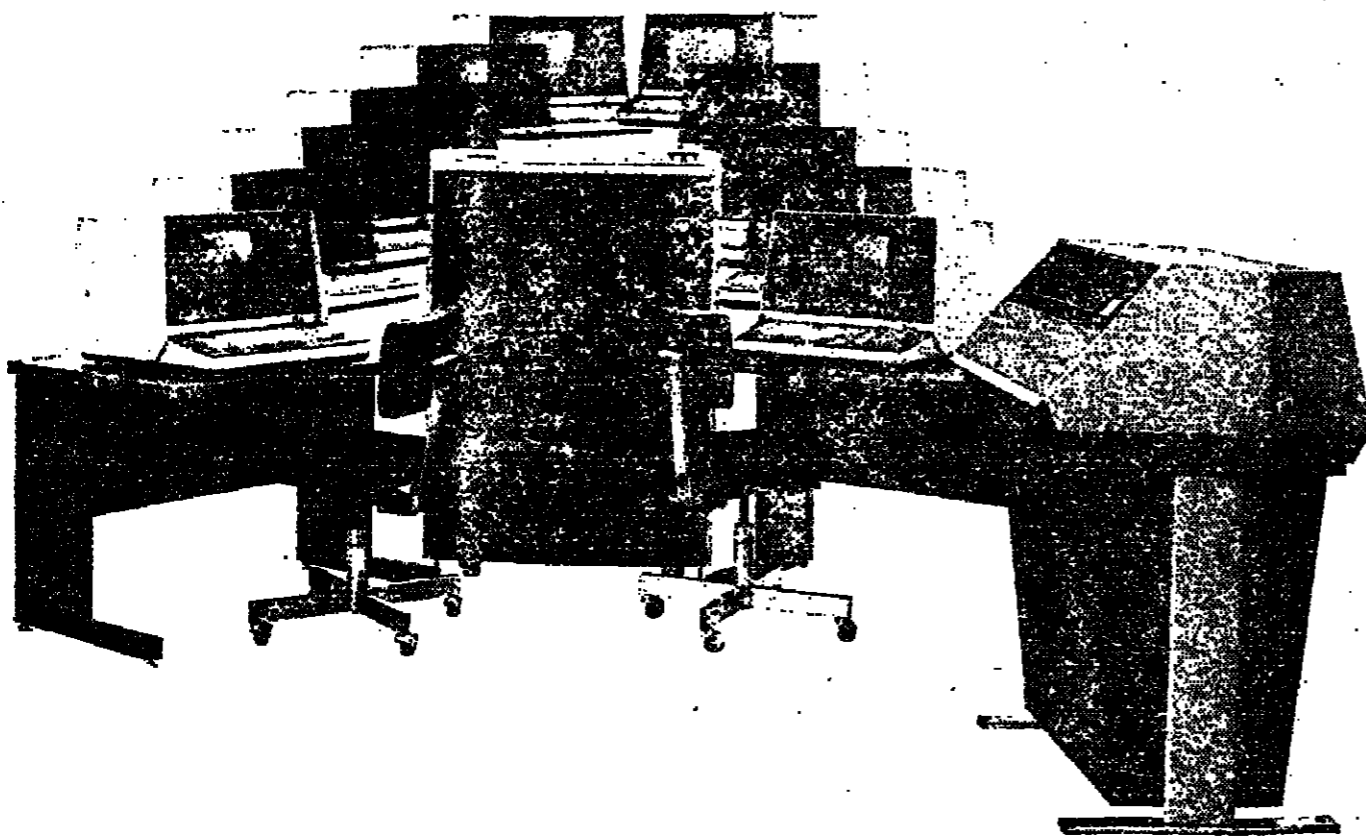
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Support for software

THE SOFTWARE industry in the U.K. still has the power to confuse observers by virtue of the multiple roles it plays in computing developments.

It is as if in theatrical terms we had suddenly seen the rise of entrepreneurial actor managers and writers from the ranks of the leading critics. A mere ten years ago the role of the software houses was largely used to making better use of the standard tools supplied by computer building firms. In 1977 these same firms, plus some aggressive newcomers, are creating computing concepts which have to be taken account of in the product development plans of even the largest organisations supplying both big and small computers.

IBM has released in the U.S. and will soon make available in Europe its small computer which can only be put to work by either large users or users employing the services and skills of software firms. This fresh initiative from IBM, which marks a distinct change of course in IBM history, has not come about as a generous gesture. The rate of use by large users and software firms of minicomputers from sources such as Digital Equipment and Data General has reached proportions which justify the supply of alternatives from IBM.

The IBM move has furthered the cause of computer-based product creation in no uncertain terms. The software houses of the U.K. have made it known to the government that the import bill for electronic products is perhaps less significant than it might at first seem.

Below the power of the mini-computer can be seen the emerging use of the micro-computer. Basically, the micro-computer is a single circuit

encapsulation of a processor which can be mounted on a printed circuit board along with memory and peripheral linking components to form a complete computer system on very few boards (in some simple cases only a single board) and this can be put to work on tasks which a few years ago would have needed some £20,000 or more of minicomputer and associated electronics.

In the last few weeks one British software firm — Computer Analysts and Programmers — has not only claimed that the resulting desk top computers can be bought for £7,000 to £8,000 but that they can be used by a single clerk or executive in the manner of the bike in the bike shed.

Performance

That is to say that the familiar pattern of squeezing the last drop of performance and use of a computer in the office is irrelevant to these cheap products. The idea is that the business leverage of a local file processing unit to a single executive is economic justification in itself and the so-called idle time can be ignored.

A further claim by CAP's chairman, Alex d'Agapeyev is that the most eager buyers for this new style of computing product can be found in the U.S. Or at least that in the U.S. there is sufficient excitement in developing these products to warrant a full-scale marketing effort of the development system which CAP has built to be used by a new breed of whole-salers of office automation systems.

Only time will tell about the validity of all these claims, but the basic ability of the U.K. software firms to compete effectively in technical terms with

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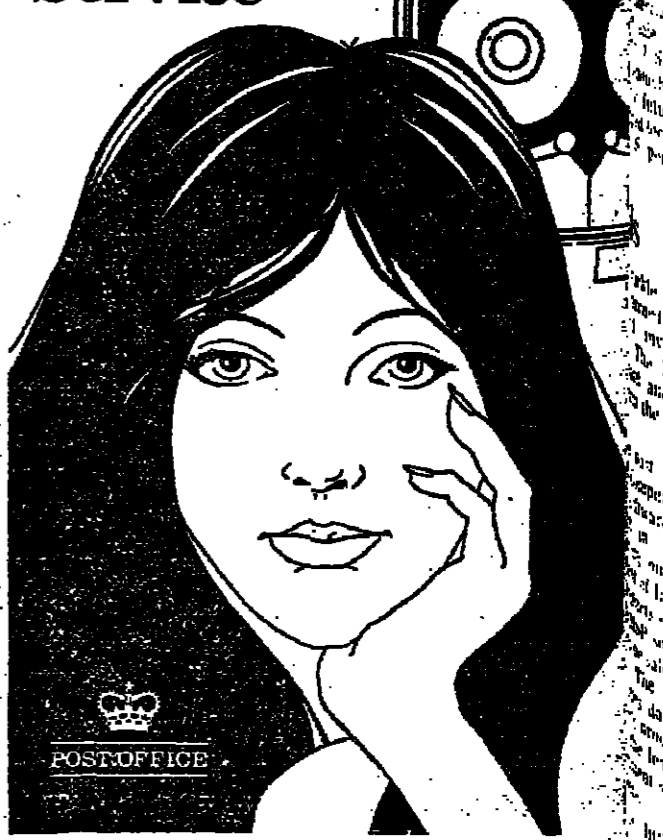
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THE COMPUTER INDUSTRY III

Modern data networks

ELY BECAUSE of the switched network can be character of the U.K. visualised as a number of "packet exchanges" linked together in a ring. Users can link to the network at any exchange, and feed their data to the exchange in the form of short bursts or packets. A continuous stream of data packets is circulating in the ring connecting the exchanges, and once a user's data reaches the exchange to which his destination computer is connected, his data is removed from the stream of packets and transmitted to the "host" computer.

Complex
In a large packet-switched network, the arrangement is more complex and each exchange is linked to all the others by at least two different paths for security. Thus there is no direct dedicated link between the sender and the receiver, merely a common highway along which messages travel for many destinations together, like a motorway with multiple exits.

The advantage of this approach is that in theory it is much more economic in its use of fixed telephone lines or satellite channels. The alternative is the circuit-switched network, where every time a user wishes to send a message, a dedicated channel is set up between the terminal and the host computer for as long as data is being sent. But in many cases, this ties up lines for long periods when only small amounts of data are being sent. The connections to the network are simpler, particularly if data is sent to only one computer or type of computer.

The arguments for packet-switching as opposed to circuit-switching are finely balanced. This is evidenced by the fact that West Germany has begun to bring into service a public circuit-switched network, EDS, while France is working on a

national public packet-switched network, Transpac, due to come into service in the summer of 1978. It is Transpac which has really started the scare that the U.K. is being left behind. CCITT, the European PTTs' joint standards-setting body last October adopted a standard for packet-switching interfaces called X25, and both Transpac and the Canadian public packet-switched network Datapac will use X25.

The U.K. Post Office on the other hand has not yet firmed up its public data network plans. Its Experimental Packet-Switched Service, EPSS, with exchanges in London, Manchester and Glasgow, is beginning to provide service to some 40 users who are participating in the experiment. But the EPSS interface is incompatible with X25 and while many people both within and without the Post Office would like to see the "Experimental" dropped from EPSS, the standard changed to X25, the move has not yet been announced.

As recently as 1975, the Post Office talked in seminars, about the probable introduction of some kind of circuit-switched network which might be implemented towards the end of the decade, but public spending cuts are pushing this far into the future. The idea

Two significant developments of the concepts, particularly in Britain and France, the battle is by no means won. In Scandinavia, the four national PTTs are going ahead with their own Nordic Datanet, which will use circuit switching. Packet-switching was rejected because, according to the Danish PTT, "the only gain with packet-switching is in the transmission facilities needed, but the network nodes are much more expensive." The Nordic Datanet will as far as possible adhere to CCITT standards for circuit switching, but will by no means be completely compatible with Transpac or Euronet, or indeed with the German EDS.

Research
Initially, Euronet will be a private network used mainly by research establishments, but the intention is that it should ultimately become a general-purpose public facility. Already Italy is considering putting in a number of Euronet nodes as an alternative to establishing its own internal national data network.

However, despite the tremendous enthusiasm for packet-switching and for the X25 standard which is to be found among a number of articulate pioneers

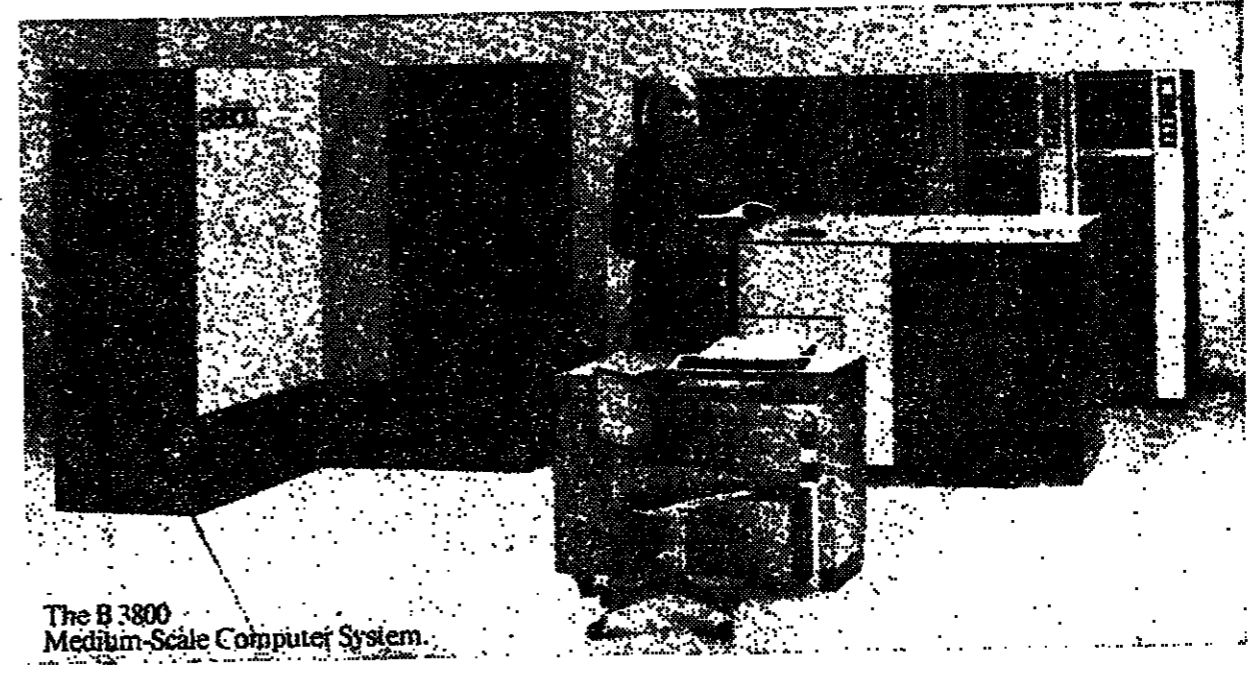
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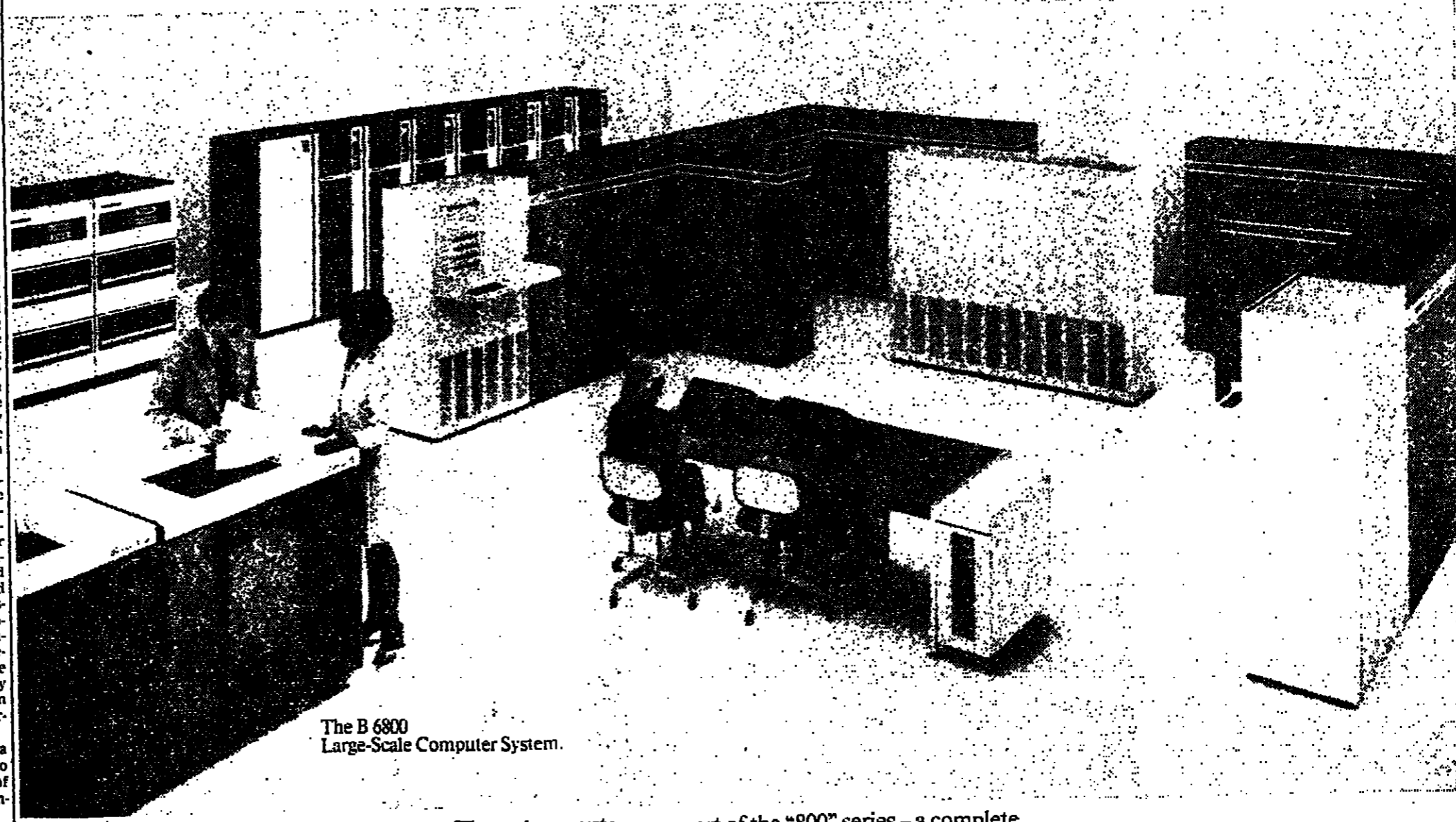
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COMPATIBLE WITH THE FUTURE
Burroughs B

Software

CONTINUED FROM PREVIOUS PAGE

ers in the world is not to be scoffed at. U.K. firms have won a reputation in the demanding of pushing technology by the giants of computer cost-effective areas of the conventional suppliers.

European advanced application is shaped a little differently from U.S. history, but is no less impressive. The state of telecommunications in Europe has undoubtedly been a handicap to firms specialising in computing, but in military automation, in real time applications and airline operations, the best in Europe rank with the best in the world and generally cost less to produce and keep.

his experience is to be rounded round the world then nations forced on U.K. through investment fund-raising must be over-Setting up a marketing operation, whether in Europe or U.S., is not a cheap

program products side of has now forged enough and operating subsidiaries able to claim that it can Europe as a single market. past year, only IBM sold program products than of CAP did in Europe. of these products are at the mass of IBM users, users dominate the European commercial market. CAP's able sales to them based on U.S. products, will be enough cash flow to that future products can be developed locally and perhaps U.S. penetration in the

to tackle the U.S. market has turned to both government and investment group. The National Enterprise Board and Charterhouse form the basis for CAP's

the past few years the National Computing Centre has a software product department in a limited way acting on behalf of the Government. One of the products - Dataman - is fit to be saleable in volume. The head of MSP, Gomes de Costa believes that his product and claims it is the leading candidate for government support in over-markets. There is little doubt that these market claims and

pointers are being taken note of in the Government offices of the Industry and Trade departments.

But the long haul picture is still thought to be the key to future prosperity and export earnings for the U.K. software industry as a whole. The NEB has slightly worried the members of the Computing Services Association by its selective approach to investment. As far as can be known at the moment the intention of the NEB is to inject funds in some half-a-dozen U.K. firms with overseas development potential through its INSAC subsidiary.

Although the fund injection is welcomed by all in computing service industry quarters the part-ownership style of investment creates many worries where future home market activities are concerned.

Preference

There is a feeling that undue preference will be shown in Government and nationalised sector projects in computing towards firms entering the INSAC fold. In general it is also believed that as much may be lost as gained by carrying an official Union Jack label in some overseas markets which are very wary of linking their domestic developments to any foreign Government influences.

Both in the booming continental European market and the still hopeful Middle East market it is thought that government funding is only needed for product development in software which cannot be achieved by profit siphoning. This aid seems to be achievable by transforming the NCC's software products scheme and by close liaison between government research and leading firms. The problems hardly seem to justify direct NEB stakes in a chosen elite of U.K. software and service houses.

The CSA has recently made a determined bid to draw out into the market-place the skills of government research establishments active in computing. The director general of the CSA, Alan Benjamin, says, "The special problem solving skills of government research establishments and some university sites are a great potential source of strength to the U.K. economy. Our members need to be able to garner experience in working with these institutions in a very positive way. We believe that the U.S. firms are our main competition and they do have solid experience of collaborating with government funded research."

Hedley Voysey

THE COMPUTER INDUSTRY IV

Japan is striding in

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MANY AMERICAN and some European observers expect the Japanese challenge on the European market for computing equipment to take shape this year and become serious by the end of the decade.

A study of the background to this latest manifestation of Japan's drive to compete in all new technologies hinges on the latest annual economic survey of Japan published by OECD which points to a continuing improvement in the Japanese economy.

Obviously Japanese prowess in areas such as consumer electronics, motor-cars, steel and shipbuilding will be a greater worry to the government of the U.S. and the EEC than Japan's newly-formed confidence in the computer market place. Nevertheless western Europe and the U.S. can no longer afford to ignore the Japanese challenge in computing.

Recent reports have drawn attention to the new hardware launched over the past two years in which Japan's builders quite sensibly have chosen to develop systems which are compatible with those of IBM, the world leader in most sections of the market.

It is not always realised that the Japanese home market is now the world's second largest in national terms after the U.S. Until recently that market was protected from foreign competition by a series of import controls, both quantitative and qualitative. The removal of quantitative controls has, in theory, left foreign companies free to take as large a share as they like. In practice there are still import duty hurdles and other less tangible factors which will make it difficult for foreign firms to gain a foothold. As in the U.K., govern-

ment bodies and other public institutions are expected to use the domestic industry. Finance is more readily available for leasing Japanese machines. In addition there is the distinctive writing system which needs more sophisticated input mechanisms than western equivalents.

It is difficult to quantify the advantages held by the domestic industry resulting from the factors described above. Nevertheless in the long-term if the Japanese computer industry is to be successful worldwide, it will stand or fall by its technical competence and marketing strength. Of the former, there seems to be little doubt though there are few published comparisons. Its marketing strength is less easy to estimate.

Target

In this context it is interesting to note that the 1976 target for the number of general purpose computer installations in Japan was 38,000 giving it a level of computer investment equivalent to that of the U.S. in 1970 and roughly equivalent to that of France and Germany nowadays. It now looks as if this target will be comfortably exceeded. However, quantity of investment is one thing, quality is another.

It has long been suspected that the Japanese user lacked the sophistication of his American counterpart and more importantly, so did the Japanese manufacturer. The Japanese expect to produce the next generation of computers early in the 1980's and, to develop these machines, plan to invest over £300m. over the next eight years. This onslaught has been con-

trasted with IBM's apparent lack of interest in a new generation of general purpose machines. IBM recently announced a new series of small computers and also has taken a stake in Satellite Business Systems, a consortium established to provide satellite data communication links throughout the U.S. There is little doubt that IBM is slowly downgrading the significance of large mainframe computers.

Now the Japanese manufacturers have always modelled themselves on IBM at least insofar as technical developments are concerned. There is, however, no sign that they have lowered the priority they have traditionally placed on the large general purpose computer. Similarly in the United Kingdom there is little evidence that ICL has lowered the priority it puts on centralised mainframe-based systems. The success of the small business computer, the 2903, has not altered ICL's determination to market an up-to-date equivalent to the 1900 range.

In addition to providing substantial funds for the development of new hardware the Japanese Government has invested in a number of major application areas. For example, in 1974 the Ministry of Health, together with the Ministry of International Trade and Industry, laid down plans for the development of a comprehensive medical system which

included an area medical system, an emergency medical system, and a hospital automation system.

Plans are well advanced for the establishment of a comprehensive information system cutting across all aspects of life including television, shopping, facsimile, traffic control, and computer-assisted instruction. Fundamental research started in 1972 and since 1974 work has been directed towards the development of machine prototypes and software. Meanwhile, experimental operation of the system in two towns is helping to evaluate the technical reliability and feasibility of the system.

Comprehensive

A five-year project was started in 1973 with a budget of over £10m. for the development of a system for transmitting information regarding the best route of travel and other traffic information to individual cars on the road. The ultimate aim of the system is to relieve traffic congestion and, as a consequence, prevent traffic accidents and pollution.

During the period 1961-74 the Japanese exported computers to the value of about \$50m. According to the Finance Ministry's Customs statistics, almost half of this sum is accounted for by peripherals and terminals while IBM Japan exported the bulk of the mainframe computers. According to

MITI, the ratio (by value) of computer exports to total computer shipments by Japanese computer makers is expected to increase to between 15 and 20 per cent. by 1980 in comparison with the present ratio of less than 1 per cent.

To achieve this goal, it will be necessary to increase exports of mainframe computers rather than concentrate export effort on peripherals and terminals.

To this end MITI intends to set aside in the fiscal year 1976-77 special export loans to be made by the Exim Bank of Japan to computer manufacturers. These loans, which may amount to around £2m will help finance overseas rentals. Rather than setting a system for overseas rentals similar to that for domestic rentals, MITI has decided in favour of Exim Bank loans to compensate the manufacturer still in the balance. There is no doubt that the Japanese Government will not allow to fall foul of a lame policy. Further rationalisation is likely to be the order of the day.

Ultimate success on a wide rather than a national basis will depend on the ability of the industry to forecast trends in technology and to provide effective marketing organisation.

Dr. J. O. Jenkin
Imperial College

America still dominant

EVEN AFTER years of cajolery by the Department of Commerce, most American manufacturers still treat exports as a luxury of very secondary importance to the home market. The two obvious exceptions to this rule are aircraft and computers. Other industries, such as cars and chemicals, contain giant companies with massive overseas interests, but most of their non-U.S. revenue stems from foreign manufacture. To some extent this is true of computers, but the sector still provides a healthy trade (and licensing payments) surplus for the overall national accounts.

Impetus

The reason for U.S. domination of the world computer industry are now legendary. They include the impetus of the space programme and of massive military development and supply contracts. Equally important has been the existence of a unified market of over 200m. people, many of whom still epitomise the entrepreneurial spirit (for financial and social reasons): not a few of the big U.S. computer names climbed the ladder with the help of European inventions which they exploited far more quickly than their British or German counterparts.

Once rolling, the U.S. computer machine has proved all but impossible to slow down, as many a weary official in the

European Commission would testify. Taking the mainframe manufacturers alone, both IBM and Honeywell Information Systems (pre the CII merger) generate over half their revenues outside the U.S., with Univac not far behind at just over 40 and CDC with 32.

Of all the sectors of computing (microprocessors apart), U.S. dominance is strongest in medium- and large-scale computers (the so-called mainframe). With the proviso that accurate figures are almost impossible to obtain, due to the difficulty of defining the relevant market (a favourite but strong argument of IBM in its anti-trust cases), the most useful semi-official figures are contained in documentation for the EEC Commission's four-year "Informatics" programme, presented late last year. These give U.S. companies 78 per cent. of the installed world market by value (IBM alone accounting for 56 per cent.), against 5.8 per cent. for the Europeans and 4.7 per cent. for the Japanese.

The more rapidly growing world market for "peri-informatics" (mini and microcomputers, peripherals and terminals) is almost equally under U.S. hegemony, to the tune of 70 per cent. But domination may be too strong a word for the U.S. position on the EEC market for Europe, in spite of all

peri-informatics, if one of the Commission's figures must be some doubt of them, since they do not tally with those of the whole European market reported by the IDC organisation). EDP, U.S. companies holding 81 per cent. of the European frame business, and 68 per cent. of mini. By contrast SOBEMAP survey for the mission gave U.S.-owned companies 75 per cent. of the market for "computers systems," but only 52 per cent. of the market for peripherals, but only 30 per cent. of software, the survey suggested. All figures were calculated by the CII-Honeywell Bull took effect.

Associated

What are the chances of weakening U.S. dominance? Ask almost anyone in IBM he will say it all depends on Japan. The continual systematic weeding-out of weaker Japanese companies re-grouping of the strong two closely associated Tokyo Government to push strong moves have no parallel on the EEC market for Europe, in spite of all

CONTINUED ON NEXT PAGE

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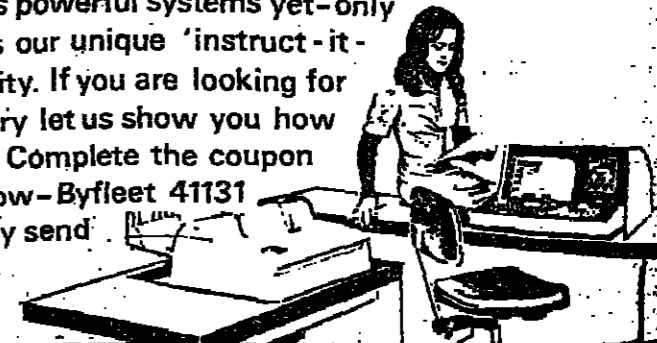
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THE COMPUTER INDUSTRY V

Europe back in contention

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talks have been held with... Japan's Fujitsu). The... process goes forward... against a background... of statements from Bonn...

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former partners in... Siemens and Philips... withdrawn to their national... Philips has also taken...

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supplement, rather than replace... the support programmes of indi... vidual governments. This...

merica... TNUED FROM PREVIOUS PAGE... nents about mergers and... prerogative of the Europeans...

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THE COMPUTER INDUSTRY VI

Users keep a close watch

THE BIG pressures on computing's effects on society are coming from the users of computers, the auditors, the British Computing Society representatives, the individual professionals and last, but not least, the public.

All of these groups serve as some kind of sorely needed watch-dog on the headlong dash to computerisation which still shows little sign of slowdown.

About ten years ago the operating systems problems of computing were severe. The parts of software which actually run the data processing plant itself. The power of big computers was such that making the best use of this power demanded programmes to organise the running of applications programmes. The problems were huge. Some operating systems for large machines have soaked up as much as half the raw power of the processor. Improved ones still burn up 20 to 30 per cent of the power of a large machine in "red-tape" activities.

But the worst of the operating system problem is thought to be behind the technicians and the very success of large computing centres now needs to be balanced against their economic usefulness and social effects.

Anthony Chandor, development director of the National Computing Centre, notes that the users are now putting pressures on for standards. "A number of factors have brought about this important change of attitude," he says. "A few years ago the user waited for manufacturers of computers to sort out the standards. Now they are demanding that attention is paid to their interests. They clearly realise the sensitivity of their business to computing reliability, cost-effectiveness and evolutionary progress."

The increasing interest in the portability of software from one maker's range to another is directly founded on these economic concerns. This interest raises fundamental points about machine design and system design which users are studying because of their relevance to suppliers' choice in future years.

Switch

This switch from short-term obsessions could not have come at a more opportune moment. The public are tired of inflexible computer systems which seem to prevent many simple changes being made in the commercial practice of a business or the social administration of a government service.

It has been the more informed user that has spotted the emergence of database techniques as one way out of the old style inflexible computer system.

With a good database system the change to applications programs can be dealt with more quickly and at lower cost than in conventional "split" files where a new use of data might mean a full file creation system as well as new applications programs using data which was already in the system spread across a number of existing files.

Databases enable the pooling of files and so create better options for changing systems. However, the users have also spotted the rudimentary nature of much database support techniques. Rather than jump out of the frying pan into the fire they are demanding progress from the suppliers of databases. These need to be more reliable, better designed, less failure prone and more tunable to keep the costs of running them within bounds.

As a consequence of database

developments there is also professional interest from BCS members in the cost-effective design of databases covering not only privacy questions and security matters but the plain usefulness of data extracted from a database. The temptation to proliferate data because it might one day answer some management question is being weighed against the support this data gives to regular management decision making. The weak notions are being weeded out.

Supporting the sceptics in computing containment are the auditors. The auditing of businesses using computing at the heart of their transactions and policy making is now taken very seriously indeed by all the major firms of accountants.

The whole environment of computing has come through the danger of being declared a technical failure and is now being judged against conventional and pertinent asset management criteria. Users are also becoming aware of impending government intervention in technical and social matters impinging on computing.

The EEC Commission's interest in various technical computing strategies is spotlighting the potential importance of decisions made between collections of governments and their associated telecommunications arms. There is little doubt that these influences are now as important to planners of both business and governmental computing as the policies of IBM or other major suppliers.

The professional members of the British Computer Society have reacted strongly to the swift changes in status of computing—from a threatened technical failure to a social and business milestone threat based on an overwhelming technical blitzkrieg.

Although the basic BCS code of conduct seems simple, it is supported by a detailed code of practice which is currently undergoing a complete review. The insistence on codes is not confined to the professional side of computing. The Computing Services Association also operates a code of business practice for its members which is called to adjudicate when complaints are lodged. The facts are that these codes are used to remind computing firms and professionals of their responsibilities. These pressures feed back to the user who becomes more aware of the pressure that is appropriate to put on suppliers' staff performance.

Large scale Government reported projects also now show thoughtful analysis from private businesses in sectors of computing and BCS and consumers' bodies.

Viewdata—the Post Office retrieval service using a computer linked to adapted television receivers—is a service which has raised many questions.

The principle of Viewdata seems innocent enough. To encourage the public and business to put more revenue in the P.O. investment in a simple information retrieval service is being limited but cheap, a two-way service in that user talks back to the computer when searching through a large file of information.

Selection

However, even the process which the selection of data to be stored is made is a public issue of no mean importance. A particular entertainment might feel censored, for instance, if left out of the Viewdata files. On business the damage done by exclusion might be much more serious. There may be a call here for Viewdata files, on business rather than the ITV companies through the Independent Broadcasting Authority. The commercial computer bureaux are aware that the basic structure of Viewdata means that it is yet another competitor in their certain business sector.

The PO crops up among computer users, professionals, the public affected by computers as a continual source of concern. The facilities tariffs boost or suppress styles of computing and security of telecommunications affects the security of computing projects. Add to this the Viewdata proposal public publishing using monopoly vantage point which may inhibit the free flow of non-Viewdata matter—creaming off the most profitable sets of public data.

All in all, the monitoring the PO is the one certainty which all parties are dogging agree on.

Hedley V

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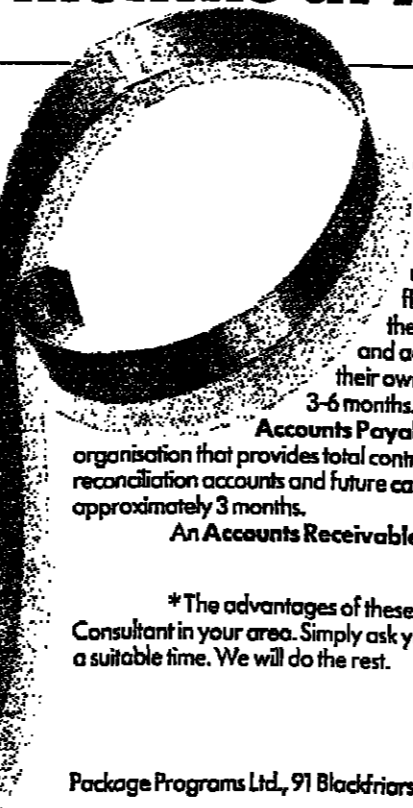
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Bureau attitudes

THE ANNOUNCEMENT by the computer Centre-FHE, the computer bureau subsidiary of the National Westminster Bank, during the last few months that it had become part of a European "pool" of computing resources marked an important change in bureau attitudes.

There has been a gradual realisation among computing bureaux operators that some of the major contracts which could be handled depended on the ability to carry out certain services on a continent-wide basis.

The crude fact is that quite a slice of potential business has already been lost to the U.S.-based bureaux which created the first international network links. These links have concentrated

on the U.S. multinational firms as clients and the transatlantic aspects of computing. However, as these networks came to cover most of the EEC countries and some outside the EEC it seemed that not only U.S.-based multinationals were exploiting the service but international firms based in Europe.

The Centre-File move is but one of a series from bureau members of the Computing Services Association to execute profitable alternatives to the U.S.-based network operators.

The largest independent service bureaux and software firm in combination in the U.K. is the Computer Management Group. CMG already operates in the U.K., Belgium, Netherlands and Germany and will be in France before long.

One of the founders of CMG, Bryan Mills, has said that the multinational service firm within Europe has a special rationale. He claims that there are special sectors of the market which can be exploited by adding up business in a number of countries but which no single country operator would find profitable.

Multinational

Most multinational firms working in computing services find life slightly complicated by the fact that Europe has both taxation and exchange controls working between countries which do not recognise the importance of the growing European multinational.

Mills says "the fear of the U.S.-based multinational is too ingrained in Europe that so little thought is being given to a proper encouragement of local competitive operations."

However, the CMG operations flourish and product development is taking place in the firm belief that an example of profitable business is the best way to impress both local European Governments and the EEC rule makers.

The Davey computing services division has successfully licensed the use of its pipework design package across both Europe and the U.S. The lesson to be learnt from this very successful exporting of native skills is that determination and stability are needed if overseas confidence is to be won. The

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معلومات الاصل

THE COMPUTER INDUSTRY VII

Shops begin to cash in

STORES ARE already a supporters within the super-market industry as a development for many of the more sophisticated retailers. Supermarkets, like any, together with some bigger wholesaling groups, food and Wheatstheaf, already have extensive installations while some mail order companies, like Lewis, have made substantial investments in computers.

As long ago as 1964, the little Neddly for distribution started discussing the idea, but it was not until 10 years later, when the McKinsey report was published, that its feasibility was demonstrated with any real conviction. While the McKinsey report was not itself a very optimistic one, it did conclude that the system could provide the grocery industry with a net gain of around £13m. a year after it had been in operation for five years.

Savings

The total savings for the retailer in Year Five, both in terms of "hard" gains like staff savings and "soft" savings like a theoretical increase in customer traffic, would be £33m. correctly over the laser "reading" point, press £12.5m. On the face of this al button at the end of report, the food manufacturers, insertion and hopefully who would have to print the code on their products, had ven pack the groceries rather less to gain. The net hout assistants do in the States. Five were seen as being between zero and £500,000, while the net cost was estimated at around £7m.

Since then, evidence from the States has suggested that the cost to the manufacturer might in the U.S., the question not be as great as forecast their products should be while the savings in terms of ally price marked is the cost of holding stock may be up by the consumer greater.

In the States, where the McKinsey's carried out a similar it has been one which survey for the industry, the n discussed with varying savings were seen primarily in of interest and commit- terms of staff, but here the or over 10 years. Pre- supporters of the system tend both by some of the to put the stress on inventory al equipment suppliers, cost savings, and benefits to be CR, and the system's derived from greater informa-



Computerised checkouts, like this laser scanning terminal in a Danish supermarket, are gaining popularity in Europe.

tion about sales. This stress may be partly for the benefit of the British unions but in America, many checkouts are manned by two operators as against only one in England.

Publication of the report hardly seemed to engender any burning enthusiasm for the idea and it appeared for a time as if the impetus would once again be lost. But in the past month two things have happened that could turn the idea of computers at the checkout into a practical reality by the 1980s.

In Europe, the European article numbering association formally adopted a memorandum for the setting up of a system of article numbering throughout Europe and Scandinavia.

The Association agreed on a 13 digit code which is compatible with the 12 digit code already printed on the labels of many grocery products in the States. This means that, in theory, the doors are now open for the introduction of a system of marking products with a code which could be read by computer assisted checkouts throughout Europe and America. Once the scanner at the checkout had read the code, the store's own mini computer could translate this information about the product into the price at which the product was being sold in the shop, while at the same registering its sale and adjusting the stock holding accordingly.

Meanwhile, in London, plans were announced to set up a British article numbering bank which would co-ordinate the allocation and use of computer numbers for U.K. grocery manufacturers. The bank should start allocating numbers on April 1 and it is hoped that manufacturers will use them on their products as they change their labels.

As labels usually have a life span of only around two years, this suggests that many big-selling grocery products could be carrying the bar code by 1979. The Article Number Association believes there is no real commercial advantage in installing a computer-assisted checkout until around 70 per cent. of the products sold are carrying the symbol so there is unlikely to be any rush to buy the front-end equipment until about 1980.

British retailers are likely to follow the example of the American distribution groups and instal the new checkouts in a few isolated stores on an experimental basis before making any major commitment to the new system. It could, therefore, be at least another two years before the new checkouts are installed on a wide scale.

The time scale could be dragged out further both by the reluctance of retailers to make the kind of financial investment involved and also, perhaps, by delays in getting equipment as, though all the major computer manufacturers, like ICL, NCR and Sperry Rand, are interested in this field, they would be unlikely to build up vast stocks for the British market before the retailers had indicated some real interest.

Given the pressure on both manufacturing and retailing profits, it is not very surprising that there have been reservations about the new technology. Certainly, many companies see the system as a potential cost saver but however attractive these savings may be in the

long term, the immediate problem is finding the money to invest in the new equipment. And as long as one retailer is not getting the edge on his competitors by exploiting these savings, the temptation is to put off spending the money.

The first move has to come from the manufacturers. In the past they have tended to see the system as having less in it for them than the retailers. But the ANA has the support of major grocery companies like Heinz and Beechams and the Association argues that, as labels have to be changed regularly anyway, the additional costs are minimal and have to be seen in the context of the savings in inventory costs, which a system which allows companies to know exactly what is being sold, and when, could provide.

Grocery

Not only does the system have the potential to speed up transaction at the checkout and minimise errors by automatically translating the bar code into the retail price, it could also transmit information on sales direct from checkout to the in-store computer and so on to the group's central computer. This information could then be relayed overnight to the manufacturer. Communications between supplier and customer

Attitudes

CONTINUED FROM PREVIOUS PAGE

future product development of The first sight of the shape of Davey in graphics applications Euronet services shows that it has been assured through the is not based on conventional flow of royalty payments from computing at all. Rather it is licensed operators such as aimed at the information Aquitaine in Paris and IBM retrieval aspects of computing, in Brussels.

The idea is to enable in a few years' time the entire body of in both Yugoslavia and Poland professional workers in Europe and its executives view Eastern Europe as a perfectly sensible market to be provided that contracts can be drawn up to satisfy the special currency factors involved.

Another bureau which has a high technical content in its computing base, and which has gone overseas is Atkins Computing Services. The interesting part of the Dutch branch of Atkins is that it has not found its main markets by merely following its multinational technical clients across the North Sea. Rather the Atkins skill has been to find new types of user and to gain from the fact that the going rates for bureau work are much higher on the Continent than in the U.K.

On the other hand a market can be found in Europe for specifically British services. Datastream is a well-known British city-aimed service for financial data which is finding a growing client base on the Continent. The BOC Datasolve involvement in Datastream rests on a 30 per cent. stake and the managerial role in its operations.

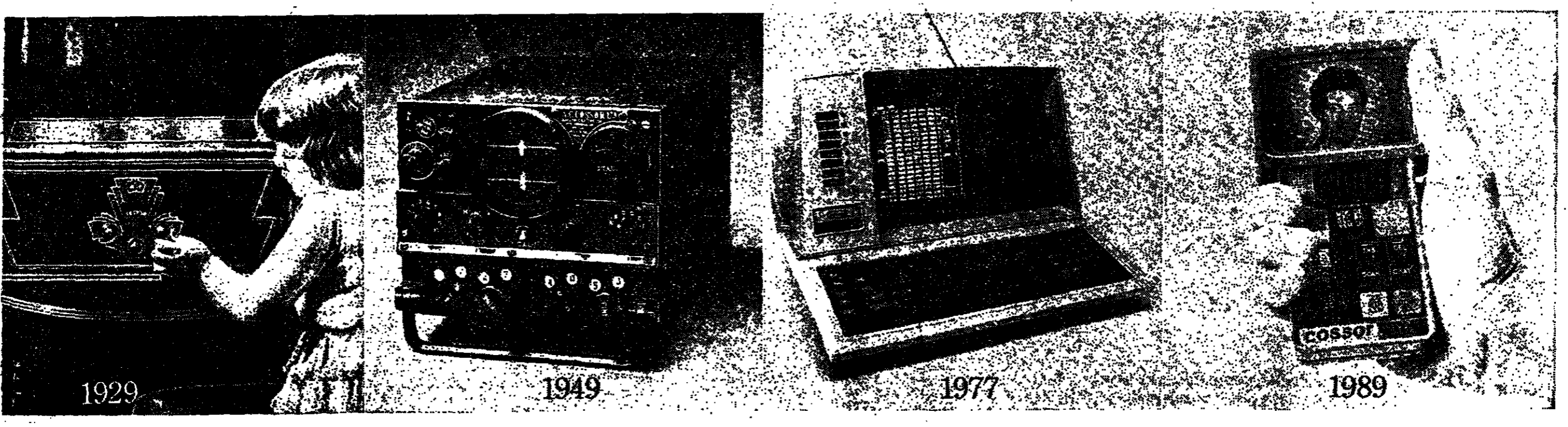
The BOC executives examining their European gains over the recent period have noticed that apart from the Datastream success there has been a useful boom in operating skills to be exported and special system software knowledge.

The necessity of exporting bulk computing to the Continent seems to be limited in their view by the performance and tariffs of telecommunications links.

The U.S.-based bureaux still seem to have much of the telecommunications based computing networks in Europe wrapped up in their hands and there is still plenty of competing space left between them for these types of operators to grow in the future.

Part of the caution exercising the minds of U.K. bureau operators concerns the way that European governments are viewing growth in pan-European computing. The outstanding project in the Euro-field is obviously Euronet.

Hedley Voysey



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THE COMPUTER INDUSTRY IX

Education and training

PROPHECY that can be made about the decade is that our economic will depend to a considerable extent upon the use of computers which we exploit computer education for managers. The pressures that have the use of computers more and more British government and professional organisations during a few years are intensifying new ones—notably, the rising cost of labour—ing added.

crucial factor in the effects with which we can meet challenge in the short term quality and quantity of education we provide for our managers, administrators and professional people. of any real value, this recognise that computing longer an esoteric art to be mastered only by technicians laymen stand reverently the sidelines, but a tool personal use as an aid to day control, the exploration of new ideas and the assessment of future opportunities.

therefore dismaying to at, on the whole, to-day's ment education in com is dismally inadequate. w of John Harris, mana- ICL Education Region, is e are breeding a genera- that is largely ignorant management's most ul and indispensable tool. U.S., he says, an esti- 20 per cent. of the y of computers dedicated ration is used as an t to the study of manage- subjects. In Britain, the ent proportion is proba- 5 per cent.

often, says Harris, the business graduate's dge of computing begins ds with a short apprecia- course and a few hours' tary programming in NCC believes, on ease of use nglish at a terminal. This and superficial approach o more harm than good

for it may, in Harris's opinion, suggest that the subject itself (as distinct from the end-user's view of it) is simple. Another person who has found computer education for managers ludicrously inadequate as a rule is Patrick Raymont, Head of Training and Advisory Services at the National Computing Centre.

In the hope of helping to plug this dangerous gap, the NCC has begun work on a scheme it has called the Plus Project. The aim is to produce a series of audio-visual aids which, Raymont hopes, will be particularly valuable for organisations who find it hard to spare managers for attendance at courses but could arrange in-house education sessions. He envisages that the aids will fulfil the needs of two main groups.

Abreast

One series will be designed to help technical people keep abreast of new developments. The other will be aimed at such people as managers in manufacturing industries and, perhaps, companies who are not yet computer users, who need to be convinced not only of the value of computers but of the nature of the contribution they can make in specific areas.

One possibility the NCC is considering in this connection is the setting up of a subscription service which would function in much the same way as a book club. This approach has already been adopted by another organisation for dissemination of information on the legal requirements arising from new legislation.

How soon the individual engineer, doctor, accountant, solicitor and other professional will regard computer power as indispensable will depend, the NCC believes, on ease of use (which in turn is largely dependent on the power of software). This aspect of computing ranks

high among the priorities of every major mainframe computer manufacturer to-day and, increasingly, of those who supply or market smaller systems as hardware-software packages.

Ease of use was, for instance one of the subjects selected for detailed discussion in the recent Showcase seminar mounted by IBM in London for management consultants and the Press. Filmed demonstrations showed how easily a financial, personnel or marketing manager without computer knowledge can write, on a visual display terminal, a program of a few lines in near-English to extract from a database any ad hoc permutation of information.

Admittedly, even the widely used "tutorial mode" which takes a terminal user step by step through the procedures needed for, say, information retrieval, is a far cry from the totally natural man-machine communication which is the ultimate goal. How long will elapse before voice communication with the computer is a commercial possibility, however, is anyone's guess.

But how real an obstacle is this lack of natural man-computer communication? It certainly has not impeded the widespread use of electronic calculators, and very soon micro-computers with a range of sophisticated software will be available at prices little higher than we pay to-day for the more elaborate calculators. Are these to go unused?

Fruitful

Though the chances are that a child who has received early and enlightened instruction on computing will probably become a fruitful user, this does not, of course, necessarily imply that the required skills for writing software will be available. Here, however, a hopeful note is struck by Patrick Raymont of the NCC who has found no shortage of suitable skills. One reason for this is that the criteria for success in the technical aspects of computing have changed and broadened during recent years. This, plus the fact that the traditional type of aptitude tests that were too often used as the major factor in selection have been discredited and are being replaced by more accurate tools, has meant the net is cast more widely. Further possibilities are opened up by the interesting discovery by NCC, through its Threshold scheme for unemployed school-leavers, that a significant number of these who by conventional standards are academic failures are found by a battery of NCC-designed tests to possess suitable skills for computer work.

Laura Tatham

Security

Continued from previous page

computers were to be imposed the sky would indeed be the limit, as far as costs are concerned.

Security, in the computer sense, is not just a matter of personnel policies and physical precautions—stopping disenchanted employees from stealing the computer tapes. It also embraces a host of technical factors such as operating systems, access controls, communications and data encryption all of which have a bearing on the overall security of a specific system.

A seminar entitled "Policy issues in data protection and privacy," held by the OECD, looked at these aspects of the security problem and a particularly thought-provoking paper by Rein Turn of the Rand Corporation examined the requirements which legislative proposals concerning computers and privacy are placing on the computer user.

Analysing the considerations associated with the design of secure systems, Mr. Turn identified the cost areas which must be taken into account in setting up protective systems as analysis and specification of security requirements, capital expenditure for physical security in the computer room, analysing the vulnerability of operating systems and implementing security-oriented software, design and coding of software for access control management, password generation, user identification, data encryption and audit trail recording.

They also included validation and testing of security-related systems software, operating systems, and access control routines, design and implementation of security regulations for data handling, programming and back-up and recovery procedures and reformatting of existing files to include security-oriented data fields.

Even more daunting than designing and setting up a security-oriented system are the costs which are likely to be incurred in operating it. Mr. Turn asserts that "typical estimates are that access control features tend to increase the overall processing time by 5 to 10 per cent, the operating system size by 10 per cent, and the main memory requirements of the operating system by 10 to 20 per cent."

Furthermore, concealing information in files by means of encryption procedures can increase processing time by anything from 168 per cent. to 800 per cent., depending on the technique used. Considering the scale of these costs, it might be thought that computer users would have thoroughly investigated the additional expenditure which security imposes. In fact, this does not, in general, seem to have been the case.

A report published by the National Computing Centre in 1974 entitled "Where next for Computer Security" showed that of 150 responsible executives at computer installations, the majority, when first polled, were quite satisfied that their establishment was adequately protected from all likely risks—a view which was swiftly modified after some probing by the NCC's investigators.

Now, awareness of the importance of security is certainly more widespread but it may be doubted whether much work has been done on estimating the associated costs.

All in all it would seem that any statutory obligation to impose high standards of security and privacy could lead to a potentially explosive situation in terms of the costs to be borne by computer users. However, a crumb of comfort can perhaps be gained from the view of an official of the U.S. Bureau of Standards that "there is a tendency to forgo privacy as the cost of that privacy increases."

Christopher Hipwell

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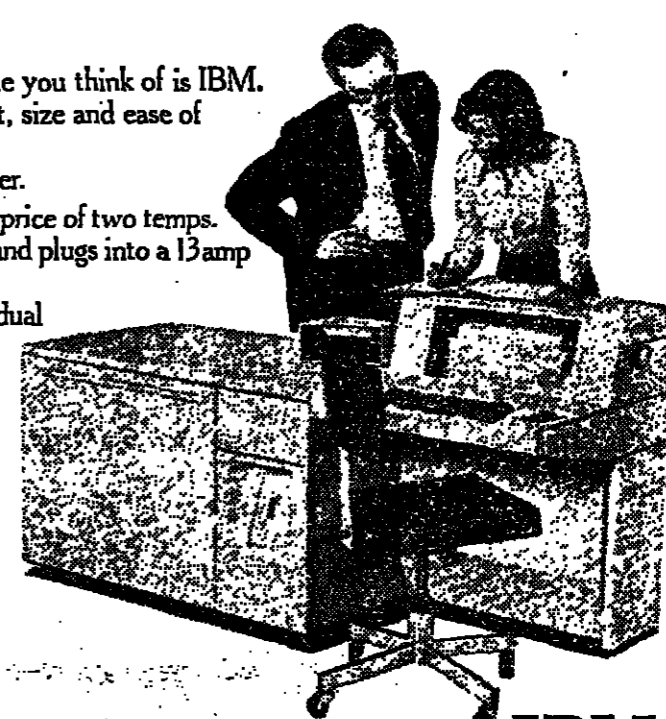
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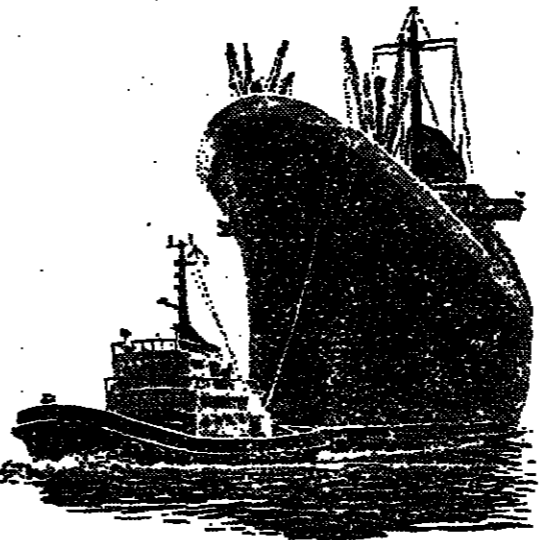
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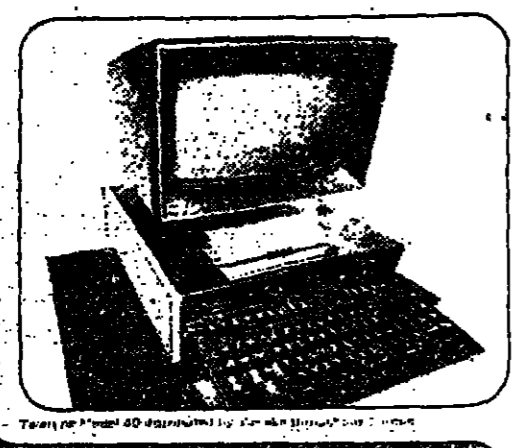
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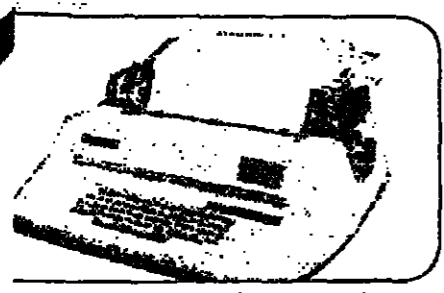
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THE COMPUTER INDUSTRY X

Aiding the engineer

A FEW days ago, Lloyd's Register approval was given, within the strict safety rules laid down by the Department of Energy, to a new design of platform—exploration or production—which may go a very long way towards solving the problems of escalating costs associated with big steel-jacketed or reinforced concrete rigs. But not a single piece of metal was cut nor had a physical model been subjected to simulated storms.

It is now becoming a commonplace that civil engineering consultants designing high-rise buildings and other structures for tremor-prone countries put their designs through rigorous earthquake tests before final blueprints are approved: again without physical model tests.

In both cases the "model" will exist in the form of a set of values and associated constraints retained in a computer memory and it will have been subjected to battering from hypothetical waves or to twisting by earthquake forces represented by a series of vectors applied at key points of the structures, considered as a series of simple shapes or finite elements.

It follows that few commercial organisations will contemplate with any joy a need for a new analysis program or system of programs since some of these systems have taken 100 man/years of mathematical computing to build and get right and also require constant effort to support and develop. Hence the appearance of a number of general systems offered by computer bureaux for shared use.

An example of facilities of this type can be found in the four general programs available at Scicon. Two are from the U.S., one from Norway and one from Britain. They are supported by some of the largest machines in commercial use, by close work with the originators and by constant exchanges with users—so the load is spread far more widely than in the case of self-developed systems. And this seems to be one of the areas where big is still beautiful since it would be very difficult if not impossible to harness a group of small machines to tackle such work.

Weakness

Finite element analysis is an important weapon in the armoury of the modern structural engineer but it needs considerable skill on the part of the staff who put problems on to the computer, and a large computer at that, since the work can demand the manipulation of matrices of the order of 10,000 square.

The output of such analyses generally would show whether the design under study did or did not comply with codes, regulations and the engineering limitations of the materials it was proposed to use.

Any weaknesses in the design would be shown up immediately and it would be a case of "back to the drawing board."

But the drawing board could be, frequently now is, a display like a large TV screen on which lines and curves can be shown by command from a keyboard and key points can be moved around the screen (converging lines moving in concert) simply by touching them with a light pen and taking this across the screen to the new position.

This mode of operating has been made possible by advances in computers and particularly of the instructions, or software, which constrain them to operate in certain useful ways.

Harnessed in the way described above, the computer is assisting the design process, hence Computer Assisted Design, or CAD. First described as a possibility in Britain some 20 years ago, it was demonstrated publicly by Elliott-Automation about 12 years ago. And because the prospect of a man-machine dialogue in which the computer would call to the aid of the designer vast stores of information on materials performance and structural behaviour, while aiding him to project with economy and safety, it was so exciting that Britain set up a unique CAD Centre at Cambridge during the years of "white-hot technology."

Now, some seven years later and after the expenditure of approximately £20m., the CADC is still unique and has, quite rightly, survived an attempt to axe it on the grounds of Government economies.

The wealth of software and systems expertise accumulated over the years is hard to

evaluate in money terms. But there is hardly an industry which is not touched in some way by the design routines available at CADC and becoming locally available all over Britain through a number of bureau/centres. The STAR network now covers Scicon, SIA and NEL and the CADC at St. Helens as well as CADC Cambridge.

One of the most significant services the Centre has rendered computer-using industry at large is the work it has done to disseminate the Gino-F package which can be used on virtually any computer to produce a series of graphics (lines, arcs, etc.) and cause them to move around the display in a certain way—rotate, shift, shear, scale, etc.

When CAD is applied to mechanical engineering, once a part has been drawn to the designer's satisfaction, a tape can be produced which will drive numerically-controlled machine-tools which will make the part to specification.

GNC is the name of the Cambridge program to produce control tapes for milling machines, lathes, spark erosion machines, etc., and it will aid a designer to nest components on sheet metal for minimum waste.

Poly Surf is another facility allowing control tapes to be made for complex 3D surfaces hitherto almost impossible to achieve by standard methods. CADC has recently perfected a detailed pipework layout procedure which is suitable for the largest processing complexes.

While engineers' ability to use large computers to speed design has now been demonstrated after years of hard work, the machine tool control unit manufacturers may be seeing the light at the end of at least as many years of rapid change.

This is because of the advent of the microprocessor which is making the automation of the machine tool much simpler to achieve for the control designer and far easier to apply for the user.

RUSC is the name of the control concept evolved by Plessey on a microprocessor basis. It is the outcome of the work done by the company's numerical control centre, firstly to merge its developments with those of AEI and Ferranti under the impulsion of the then Ministry of Technology, and secondly to look at equipment and methods in general use so as to design what world markets need.

Maker

PNC is now Europe's largest numerical controls maker but it has to operate against fierce EEC company competition as well as the U.S. giants. In consequence, RUSC is getting timely Government support since to all intents and purposes it has leapfrogged most of the competition. Coming in the form of a controller and an editor it will accept instructions from most types of input, including much larger computers, and should ultimately be available for virtually any machine tool and/or cutting operation at much lower cost than any pre-

vious form of automation, including minicomputers and dedicated controllers.

Many of the foregoing developments would be impossible or at the least far more expensive to achieve, without another form of CAD intended specifically to help electronics designers to achieve the complex drawings of integrated circuits quickly, without error and with maximum interconnection economy. Work on circuit design has been in progress in many centres for years and many man-years of effort have gone into the writing of the software needed to support the displays but also to produce the tapes which ultimately drive the plotters making the finalised artwork.

It is again a British company that has carried out pioneering work in this difficult area and Redac (Racal) software packages are being used all over the world for the fast and error-free layout of complicated multi-layer circuit boards.

In this particular area of modern technology, computing has probably come closer to an integrated whole than any other since users can conceive a design, try it out for validity under extreme conditions, amend it and then get down to detail work, providing as a by-product the instructions for the machines that will make the components. It is gratifying to national pride, if not yet to the national purse that many U.K. organisations and companies have a world lead in the field.

Ted Schoeters

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Robot technology

ALTHOUGH BRITAIN for a decade and more led Europe in nuclear power developments, several British companies were involved in the design and manufacture of powered manipulators to handle, behind thick walls of concrete and leaded glass, materials too radioactive to approach, no one seems to have thought of an extra step towards developing an industrial robot to handle hot and heavy objects.

This is all the more surprising since—at the time of maximum demand for remote handlers—Ferranti's work on advanced machine-tool and coordinate measurement techniques was reaching its peak. For one reason or another there was not the necessary cross-fertilisation, or technology transfer, or perhaps manpower was too cheap, and even now U.K. industries that could benefit from the use of robot machine servants in dangerous or unpleasant operations are tending to lag well behind their Japanese counterparts.

This is an interesting sidelight on the fact that, in a large group of industries in Japan, and including electronics, costs of production have crept up to are still around half while in the Philippines, electronic assembly work is not expected to cost more than one-tenth.

In Europe, Sweden's giant ASEA group is among the pioneers of robot development and already is making considerable use of own products in various areas including the company's casting shops. It has approached the work from the viewpoint of simplicity in use and has built the controller for its equipment around a microprocessor with a fair amount of memory. To set up a robot of this type, all a would-be user has to do is to take the head of the machine with its grippers through the sequence it will

Robust

With ESAB, a world leader in welding techniques, ASEA has developed a version of its robots to handle high-class inert gas welding of steel components which have to withstand extremely severe treatment, such as the connector unit which goes between tractor and trailer on a juggernaut. Productivity is raised by an enormous factor.

Undoubtedly, however, the massive use made by Volvo, and other European car builders, of Unimate robots in spot welding and body framing has spurred ASEA interest. Unimation Inc. was set up 15 years ago in Danbury, Connecticut, holds 700 patents in robotics and has stalled 1,000 machines world-wide with 300 in Europe alone, while its U.K. operation moved to larger premises last year to cope with European demand which takes 90 per cent. of its throughput.

As demand expands, the company is adding to the options it can offer and has units with from two to six degrees of freedom to take the head and arm actions. Memory can be specified to allow the machines to carry out up to 1,024 separate

CONTINUED ON NEXT PAGE

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THE COMPUTER INDUSTRY XI

Minis and micros

THAT it took the Government until 1966 to recognise the strategic importance of a national mainframe industry, and another two years for the British and French authorities to reach the conclusion, it is perhaps surprising that it took until 1970 for any European government to realise that there was to be a computer industry mainframes.

Again the French were first to see that while the mainframe industry was maturing, the minicomputer, peripherals and terminals sector was growing rapidly. Having decided that he had no alternative to sell out the artificially constructed national mainframe manufacturers, CII nevertheless returned to a French majority holding. The industry minister d'Ornano turned his attention to the "peripherals" sector.

It had been formed by a number of French computer manufacturers, and unlike ICL in the UK, which was specifically formed from the minicomputer market, CII inherited a variety of products for a mini, the Sigma 2 Scientific Data Systems of France.

Expertise developed in securing and marketing the machine was soon applied to the most successful European general-purpose computer, the Mitra 15, which are now approaching 2,000 mark. (Datasaab den manufactures its D8 at a faster rate, but these are almost all used in terminals, whereas 15s are used in the full range of mini applications, from hospital automation to switching of data in refinery processes.)

ing ceded its mainframe to Honeywell, the Government had to do with this successful product. The counterparts of GEC and the two big electronic conglomerates are most Thomson, which had no equal partners in the industry. Thomson favoured the solution for CII. Thomson wanted the manufacturer to remain independent. Thus when the company in CII was set up, CGE ended up with

the biggest French stake in the new CII-Honeywell Bull company, and Thomson got CII-B, the minicomputer arm as a consolation prize.

Thomson was already looking to expand its interests in the mini sector and soon reached agreement with Télémeccanique, France's number two but barely profitable mini-maker. Under the inspiration of the industry minister, CII-B and Télémeccanique have now been merged into a new company, SEMS, Europe's largest general-purpose minimaker.

Perhaps because of the strong streak of nationalism allied to linguistic chauvinism, France has developed the largest independent software and services industry in Europe, and nationalism has allowed not only CII-B and Télémeccanique but several other small mini and terminal makers to prosper, notably Internequique, which is the French leader in minicomputers for the OEM—original equipment manufacturer—market. OEMs incorporate minis bought in bulk into products which they sell to the end user, and Internequique Multi series minis, originally developed under American licences, have been incorporated in large numbers in toll collection equipment for Italian highways, in freight administration systems for Belgian railways, and in display terminal systems sold by another French company, Sintra.

By contrast the German Government only discovered the peri-informatic sector last year, and the UK Government is only now asking the industry to enlighten it, via the computer sector working party of NEDC.

Policy

Despite government neglect, Britain has more minimakers than any other European country. There is no "buy British" policy to bolster the minimakers, and as a result only Ferranti, in the rather narrow field of process control, can be counted a real success. Britain has an almost exact counterpart to Dietz in Computer Technology, CTL, which makes large general-purpose mini-computers which have achieved considerable technological success, notably in the medical automation field. But in 1975-76, Computer Technology's turnover of about £4m. showed no growth at all, which meant that it fell even further behind its American competitors. The company is now profitable, however, and if there were any real enthusiasm for European co-operation, it would be logical to bring Computer Technology and Dietz together.

Both companies are following a rapidly-growing trend within the mini-computer market, that of building up small business computer systems around the general-purpose mini processor in competition with the office computers of Burroughs, NCR, Philips and Nixdorf. Computer Technology's new 8000 series is aimed almost exclusively at the

business market, and the Dietz 621 is now also being designed for business applications.

It is a small miracle that tiny Digico, the other independent British company dependent exclusively on the mini-computer, last year celebrated its tenth anniversary. Digico has a turnover of about £1m. and is also now going after the business market, having achieved some success in laboratory automation and greyhound race-track betting systems.

Redifon manufactures a small number of minis of its own design for large key-to-disc data preparation systems and flight training simulators. Because Redifon does not have a separate division exclusively devoted to mini manufacture it tends to be left out of discussions of the UK mini-computer industry.

The other major British mini-maker is GEC Computers, but this company is not very visible in the market because the majority of its output is incorporated into other GEC group products. However football fans are likely to meet the occasional GEC mini because several big clubs have automatic ticketing systems built around the GEC 2050. But GEC has so far shown little enthusiasm for the minicomputer as a discreet product, and although it is considering developing a business-oriented language—Cobol, Basic or RPG—for the 4000-series minis, it is in no hurry to announce it.

GEC has a remarkable product within the Marconi division of the company. Called Locus-16 and announced in 1974, it pioneered the now-fashionable concept of "distributed processing"—putting small amounts of computing power where it is needed, rather than centralising it.

its logical conclusion, allowing systems to be configured with no central processing facility at all, and is extremely modular so that a handful of standard circuit boards can be configured in a wide variety of simple and complex processing units. But Locus-16 was developed for the very specific task of radar processing, and so far, nobody has thought to exploit its potential in any other application.

It is clear therefore that with the possible exception of France, Europe's minimakers are either too small to make a noticeable impact on the world market, or only exist because a large company wanted an internal source of small computers for its own use.

Does it matter if British systems houses like Arbat go to DEC for the processors in the advanced financial systems they sell to U.S. banks? Does it matter that the EMI brain and body scanners, almost all of which go for export, incorporate Data General minicomputers, made in the U.S.? Does it matter that the Post Office's automatic mail sorting equipment is built around Hewlett-Packard minicomputers?

IBM certainly think the minicomputer market worthwhile, for last November it announced its first venture into the field with Series 1. It can be argued that the minicomputer makes up only a very small part of the value of each of the products mentioned, and that anyway the arrival of the microprocessor means that the days of the minicomputer are numbered.

If that is true it is indeed cold comfort. For Europe surrendered the general-purpose microprocessor battle to the Americans without firing a shot.

T. R. Palmer

Robot

steps and each routine can be stored on a cassette for quick change-over on a production line handling a multiplicity of jobs.

Sequences of movements are taught to the machine by taking the robot through them step by step through the primary wax models are being coated with the ceramics that will ultimately form the moulds. Positional accuracies of 0.08 inch are achieved.

Analogous to this work is the automated assembly of parts for TV sets carried out by, among others, Mullard in Britain. But IBM is seeking to develop a general approach to fabrication and assembly for instances where—in contrast to most of the foregoing—production runs are short and therefore, the machine has to learn to recognise many more parts and probably carry out many more operations.

At the Thomas J. Watson Research Centre, Yorktown Heights, the problems of designing a general purpose assembler is being attacked at many levels and a large amount of computing power is harnessed to the task.

It is one thing to control a fixed sequence of movements between well-defined points from a known base with the assurance that objects to be handled will always come to the same position and do the necessary control work with comparatively simple data processing techniques. It is a much harder task—and one that may prove very expensive to carry out—to derive automatically from plain language instructions all the complex sub-sets of commands to motors, linked with sensor information, that a general-purpose assembler would have to be given. To this interpretative function of the primary instruction language would have to be added ability to recognise parts and reject defective ones.

It is a sobering thought that an instruction seemingly as simple as "put the bearings into the race and insert the spindle" may take five years or more to turn into appropriate computing language and machinery.

Microcomputer enthusiasts might query whether it is still necessary to establish such a control methodology. But there seems to be little doubt that whatever is learned in this way will also be useful—probably has already been most useful—in the design and implementation of automatic assembly equipment now finding its way into a most important area of the electronics industry. This is the point at which the individual devices, calculator chips, watch modules, memories, adders, etc.—which are microscopically small—are linked with the connectors which lead to power sources, keyboards, displays and so on. Device to connector links can be made automatically on fantastically precise machines, rather than by hundreds of operators manipulating bonders under binocular microscopes. Depending on the type of device, it is already cheaper per bond to go automatic, despite capital cost of the equipment.

Ted Schoeters

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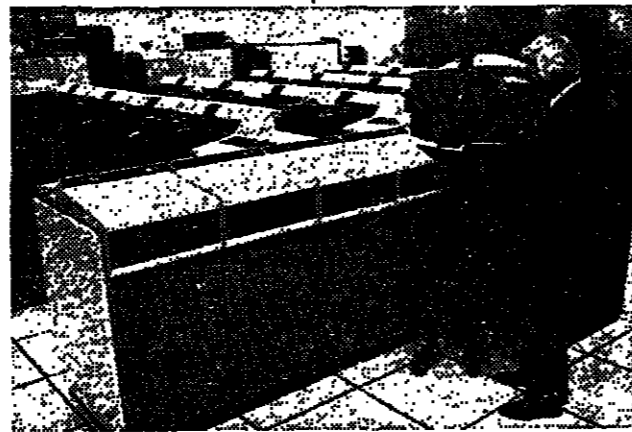
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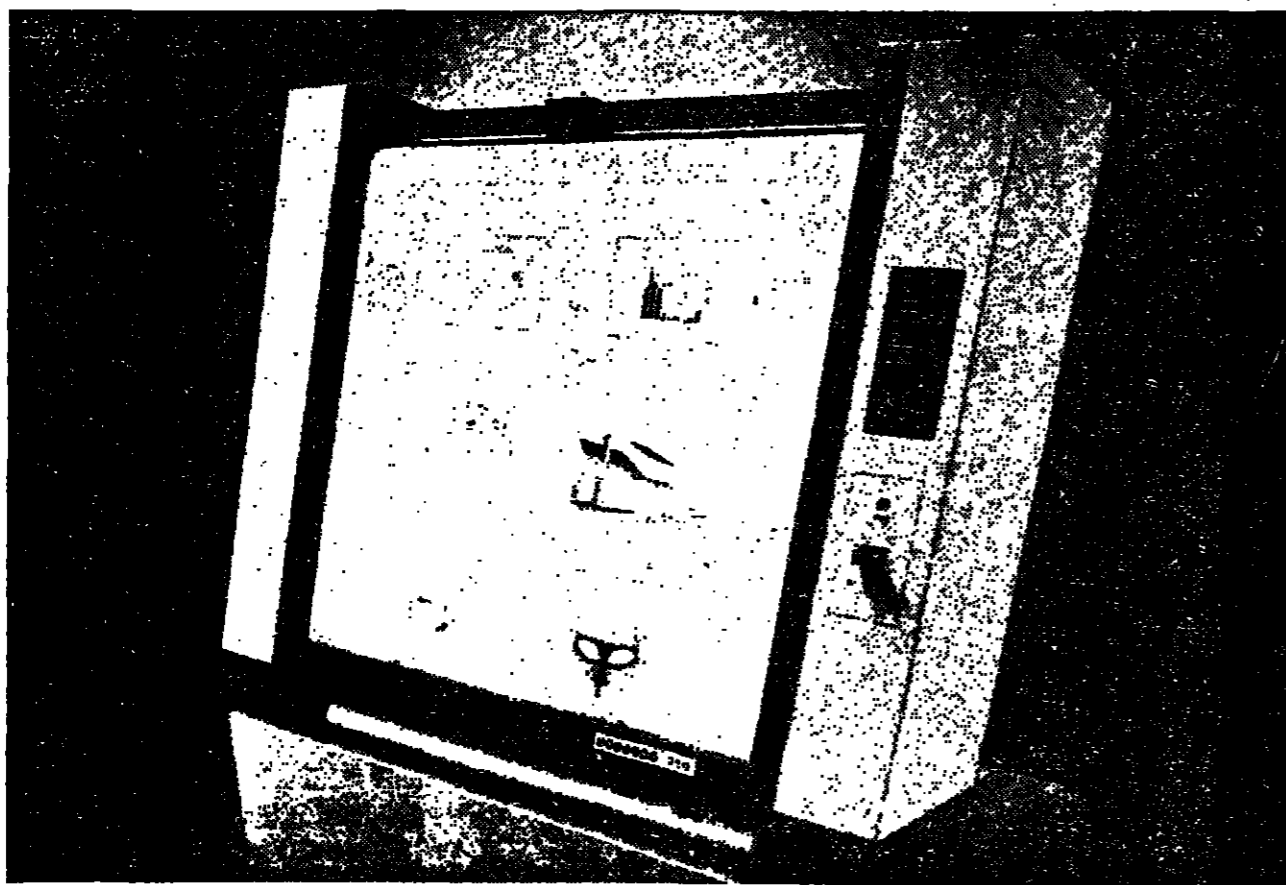
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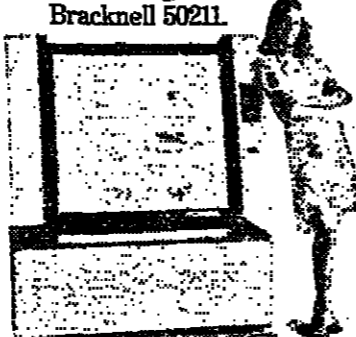
Less noise. Less space.

The new 960 is extraordinarily quiet. And because it's a vertical plotter, it takes up a lot less space.

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CALCOMP

Software changes its style

B. J. (Barney) Gibbens, director of CAP, the big U.K. software house, clarified the problem of microprocessors for me well over a year ago. We were walking around a microprocessor exhibition, and he remarked that it took him back to his early days in computing. Here were all these engineers with their fascinating new toy "re-inventing computing as if it did not exist."

He claimed not to have done any programming for years, but he thought he could program these, for as they stood one was back in the days of machine code and "making it up as you went along." He did not think that would continue for long.

It is hard to credit it, but as little as eighteen months ago people thought of the microprocessor mainly as a systems component, and not potentially as a computer in its own right. Indeed, one microprocessor manufacturer even had a Press officer who did not send his releases to the computer Press because he did not think they would be interesting.

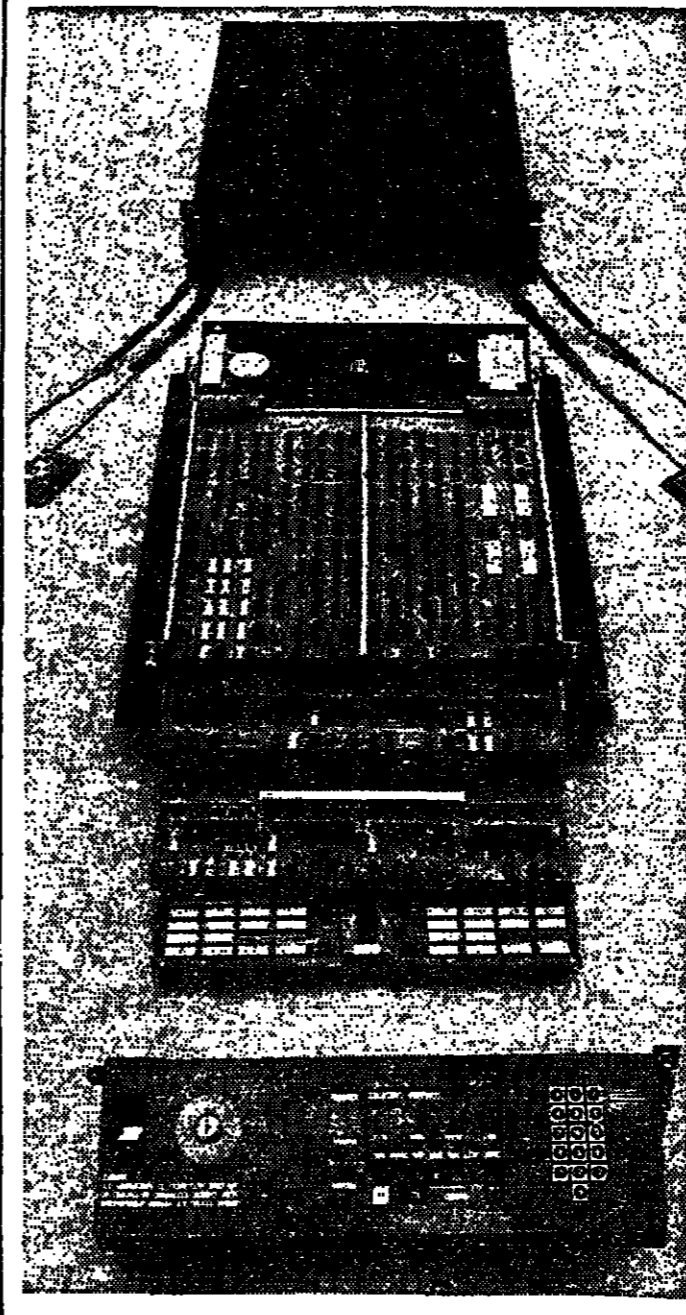
The recognition of the microprocessor market as one spanning both old and new territory is much more recent, at least on this side of the Atlantic. Because of this, and the lack of past historical data to establish trend lines, the forecasts are very varied. However, there is general agreement among the forecasters that the microprocessor will have moved into three areas in a substantial way by the early 'eighties. The areas are consumer electronics, cars, and computing.

Production

It is the last which is perhaps of the most interest here. For it is in this area that we can expect the development of the microprocessor power to continue at a rapid rate and individual systems to be created, based on microprocessors. By individual is meant their production in terms of hundreds and thousands, rather than hundreds of thousands.

Perhaps the most useful of the forecasts to use, in large computer, however, forms the part because they are the most conservative, are those produced by the consultants MacKintosh International, and Iann Barron at the least 20 to one, 20 for who edits their publication, Microcomputer Analysis. They calculate that by 1980, the 13 country European market will be taking some 2.5m. units a year (as against the 1.35m. units going into consumer electronics and the 900,000 going into cars), of the Just over 20 per cent. (520,000) of those will be bound for the limited.

It is obvious that at this level, the economics of writing software for microcomputers will be taking some 2.5m. units a year (as against the 1.35m. units going into consumer electronics and the 900,000 going into cars), of the Just over 20 per cent. (520,000) of those will be bound for the limited.



A far cry from the room full of equipment that was a "small" computer 10 years ago. This is an exploded view of Honeywell's new Series 60 Level 6 model 6/36.

It is also obvious that the creation of software for microcomputers is going to be left to the software professionals. Naturally, the manufacturers will do some — they do some already. But theirs will be standard solutions for the mass market. One of the key things to understand about the microprocessor is that it is a device of great generality, and that while few people are likely to wish to spend the required resources to tailor one to their requirements, many are likely to try to tailor small numbers to their requirements, for instance in a distributed computer network, each doing the same tasks.

Microsystems

Thus Comshare have just set up a technical research group to develop microsystems to enhance their existing network, and are envisaging putting them in their computer centres and remote offices. The real question of interest to the user however is, can the computer services industry, particularly the software houses develop tools and techniques to bring down the costs of programme preparation, indeed make it almost programme manufacture.

Certainly, some of the software houses believe they can. Two companies have made announcements recently, and there are others claiming if not quite so loudly, to be in the field.

Zeus Hermes, a software house, has announced its MICRO Z division and offers a service which runs from providing application software to the provision of a complete microprocessor system, both hardware and software, specially tailored to the clients' requirements. Their services are aimed initially at the electronics engineering field, commercial data processing, the mass device manufacturer market—washing machines and the like, and the hobby market, which is a very sizeable market already in the

States. CAP's Microsoft division, contrast, seems to be fixing sights firmly on conventional commercial data processing and its replacement in areas by microcomputers. It does this because it claims developing techniques to software for microcomputers which is in advance of the use in the U.S.

The technique consists using other computers optional (minis) to aid in the tion of the software, and testing it on the micro. In way it uses the development aids that are already available and saves much time and expense. It is all described in a very useful book published "An Introduction to Microcomputers for Business Applications."

It is by such ventures as of CAP and Zeus Hermes, real progress is going to be measured, for their success otherwise will determine computer usage growth. The a very strong case to be made for the need for a British microprocessor/microcircuit industry to produce the hardware, a quite simple fundamental made in the past by Germany and the two major electronics groups the U.S. longer has.

But even if Britain were to start to create one once it would be some considerable time before it would do anything different to what already being done in the and at competitive prices.

For now, and for at least next five to ten years, the U.K. has an industry capable of building complex software hardware for large-scale markets, the real added value going to come from software produced by software houses. And produced by software houses, for they have the skills and the operating levels.

Rex M.

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Outstanding dividends

The convenience of readers the dates when some of the important company dividend statements may be expected in a few weeks are given in the following table.

Table with columns: Date, Announcement last year, Final 1976, Dividend, Announcement this year, Final 1977, Dividend. Lists various companies like Anglo-Siam, Anglo-Siam, Anglo-Siam, etc.

Public Works Loan Board rates

Quota loans B are 1 per cent. higher in each case than non-quota loans A. Equal instalments of principal, 1/3 equal repayments. Effective from February 19, 1977.

Table with columns: Rate, Term, Rate, Term. Shows interest rates for different terms like 12, 18, 24 months.

FIXED INTEREST STOCKS

Table with columns: Stock, High, Low, Dividend, Yield. Lists various fixed interest stocks like Adams Poodle, Agria, etc.

"RIGHTS" OFFERS

Table with columns: Stock, High, Low, Closing Price. Lists various rights offers like Agria, Agria, etc.

BASE LENDING RATES

Table with columns: Bank, Rate. Lists various banks and their base lending rates, such as Bank of Montreal, Bank of Toronto, etc.

INTERNATIONAL COMPANY NEWS

Alcan to keep captive power

Alcan has 700,000 tons of smelting capacity in Quebec, mostly at the Saguenay region smelting system, out of its total Canadian smelting capacity of one million tons.

Intercom rights issue to raise B.Frs. 3.83bn.

INTERCOM, the largest producer and distributor in Belgium's almost totally privately owned electricity sector, has announced that it intends to raise B.Frs. 3,830,000,000.

Boat builders to merge

THREE of Sweden's leading and improving production. The combined sales of the three companies amounted to Kr.180m.

Money and Exchanges

Bank of England Minimum Lending Rate 12 per cent. (since February 3, 1977). Fixed period interest rates fell quite sharply around the middle of last week.

FOREIGN EXCHANGES

Table with columns: City, Rate. Lists exchange rates for various cities like New York, London, etc.

EURO-CURRENCY INTEREST RATES

Table with columns: Term, Rate. Shows interest rates for various terms like 12 months, 18 months, etc.

EXCHANGE CROSS-RATES

Table with columns: City, Rate. Shows cross-rates between various cities like London, New York, etc.

MINING NOTEBOOK

Mr. Grey casts his spell over Pancontinental

THREE WEEKS ago I reported that Mr. Tony Grey, the chairman of Pancontinental, was coming to London to attend a Uranium Institute meeting.

view of the highly competitive field into which he has thrown his uranium producers as a result of its own dilatory inaction. The other great question which had to be put to Mr. Grey, of course, was: how the uranium industry is to counter the persistent and understandable optimism that his at present "fostered" Jabulka uranium project must eventually win through.

Share verdict

At this point it is asopposite to quote from the latest circular sent to clients by London brokers Laurence Prust. It says that Australia is to set up an advisory committee to advise on a national energy policy.

INSURANCE

Subsidy for vehicle fleets

AS ANYONE who has recently bought a new car or motor vehicle will tell you, manufacturers' prices have continued to rise, if not an alarming rate.

DELSON & Co. Limited

The 25th Annual General Meeting of the Company was held in Birmingham on Friday, February 18th, 1977. In my report last year I stated that an optimistic forecast could not be made, and as it turned out this was correct.

INSURANCE BASE RATES

Table with columns: Policy, Rate. Shows insurance base rates for various policies like Fire, Theft, etc.

BY TONY HAWKINS

OVERSEAS MARKETS

EUROBONDS

Difficult to be optimistic about short-term prospects

A SENSE of drift pervaded the Eurobond market last week with secondary market activity at a low level and the primary market losing momentum against a background of new issue indigestion. During the week, three new dollar issues were announced (for a total of \$100m), adding a further \$100m to the dollar new issue calendar for the year, while the Deutschmark market re-opened with the DM100m issue for Norges Kommunalebank. The German banks had agreed to stretch out the February new issue calendar because of market indications that the new offerings from Westdeutsche Landesbank will be followed next week-end by a DM200m issue being launched by Deutsche Bank.

January, U.S. consumer prices were rising at an annual rate of 9.6 per cent, while the market shivers down the spines of bond investors. True, it is wrong to read too much into a single month's figures, but the fact remains that the sharply higher rate of consumer price increases will adversely affect investor sentiment. Add to this the new Administration's plans for stimulating the economy - which the markets, probably rightly, are reading as inflationary - and it is not difficult to see why there is so much caution about fixed-interest investment at this stage of the economic cycle. The weakening of the dollar against the DM, Yen and Swiss Franc is a further negative consideration. Currently on offer in the dollar sector are five issues, including a new floating rate note for Banque Louis Dreyfus. This has a 6 1/2 per cent minimum with a spread of 1 per cent. (Instead of the normal quarter) above Libor. It is being led managed by Credit Commercial de France - fresh from its Newfoundland success - and with an amount of only \$20m, to reassure dealers who are confident of its success. The Saab-Scania \$50m, 13-year offering on an indicated 8 1/2 per cent coupon is reportedly being well received. Volvo, priced at an on an 8 1/2 per cent coupon, ended the week at around the 9 1/2 level, suggesting that investors are looking for higher Saab, but the identical amount and coupon, and like Saab, with a powerful looking management group, should cope well enough with the rather difficult market conditions at present. Some dealers said, they had encountered reasonable demand for Norpipe, which undoubtedly is a high-grade credit. Due to be officially launched today is a \$30m, 10-year issue for Tauernautbahn, under Austrian Government guarantee, with an average life of 8 1/2 years.

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Table with columns: DOLLAR BONDS, Amount \$m., Maturity, Av. Life, Coupon, Price, Offer yield %.

Table with columns: BONDTRADE INDEX, Friday, High, Low, Medium, Long, Convertible.

Indices

NEW YORK - DOW JONES

Table with columns: Feb 18, Feb 17, Feb 16, Feb 15, Feb 14, High, Low, % Change.

INDICES

N.Y.S.E. ALL COMMON

Table with columns: Feb 18, Feb 17, Feb 16, Feb 15, Feb 14, High, Low, % Change.

JOHANNESBURG

Table with columns: Feb 18, Feb 17, Feb 16, Feb 15, Feb 14, High, Low, % Change.

GERMANY

Table with columns: Feb 18, Feb 17, Feb 16, Feb 15, Feb 14, High, Low, % Change.

AUSTRALIA

Table with columns: Feb 18, Feb 17, Feb 16, Feb 15, Feb 14, High, Low, % Change.

MILAN

Table with columns: Feb 18, Feb 17, Feb 16, Feb 15, Feb 14, High, Low, % Change.

COPENHAGEN

Table with columns: Feb 18, Feb 17, Feb 16, Feb 15, Feb 14, High, Low, % Change.

VIENNA

Table with columns: Feb 18, Feb 17, Feb 16, Feb 15, Feb 14, High, Low, % Change.

OVERSEAS SHARE INFORMATION

NEW YORK

Table with columns: High, Low, Stock, Feb 18, Feb 17, Feb 16, Feb 15, Feb 14, High, Low, % Change.

NEW YORK

Table with columns: High, Low, Stock, Feb 18, Feb 17, Feb 16, Feb 15, Feb 14, High, Low, % Change.

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NEW YORK

Table with columns: High, Low, Stock, Feb 18, Feb 17, Feb 16, Feb 15, Feb 14, High, Low, % Change.

AUTHORISED UNIT TRUSTS

Table listing various unit trusts and funds, including names like 'Bridge Fund Managers', 'Secretarial Unit Fund Managers', and 'M & G Group'. Each entry includes details such as the fund name, manager, and performance metrics.

INSURANCE, PROPERTY, BONDS

Table listing insurance, property, and bond products. It includes sections for 'ANCIAL TIMES STOCK INDICES', 'HIGHS AND LOWS', 'ACTUARIES INDICES', and 'KONG'. Each section provides specific data points and market indicators.

OFFSHORE AND OVERSEAS FUNDS

Table listing offshore and overseas funds, including names like 'Arbunnet Securities (C.I.) Limited', 'Charterhouse Japhet', and 'G.T. Bermuda Ltd'. It provides details on fund structures, managers, and investment focus.

BANKING APPOINTMENTS

AMERICAN EXPRESS INTERNATIONAL BANKING CORPORATION

We are seeking to appoint BUSINESS DEVELOPMENT/CREDIT OFFICERS to assist in the expansion of our Marketing Programme.

The successful applicants will be responsible for promoting a comprehensive range of financial and banking services to Commerce and Industry, and should be prepared if necessary to relocate on appointment to one of our Representative Offices within the U.K.

The posts offer outstanding opportunities for advancement both in the U.K. and Overseas. Applicants will ideally be in their early 30s, have had at least ten years' Banking experience preferably Domestic and International, to include Credits, Foreign Exchange and Marketing.

Salary will be commensurate with experience to which will be added excellent fringe benefits.

Please apply in writing, giving brief details of career to date to:

Mr. E. J. Ralphs, Manager—Personnel, American Express International Banking Corporation, 82/60, Cannon Street, London EC4P 4EY.

Jonathan Wren Banking Appointments. The personnel consultancy dealing exclusively with the banking profession. We are looking for suitably experienced candidates to fill the following vacancies:

- REIMBURSEMENTS (M.T.'s/T.T.'s) c. £3,000
TRAINEE DOCUMENTARY CREDITS to £3,000
CREDIT ANALYST c. £5,000
EUROBOND DEALER c. £7,000
A.C.A.—AUDIT £5,000
EXPORT FINANCE MANAGER to £9,000
DOCUMENTARY CREDITS.....to £4,500
E.D.P. AUDITOR.....to £7,500
O & M OFFICER.....to £6,000
LENDING OFFICER.....to £9,000
BRANCH MANAGER (finance) to £7,000
FINANCE REPRESENTATIVE...to £6,000
CHARTERED ACCOUNTANTS to £7,000
EUROBOND SETTLEMENTS... c. £3,000

Contact: NORMA GIVEN & LESLIE M. SQUIRES.

Jonathan Wren & Co Ltd, 170 Bishopsgate, London EC2M 4EX. 01-623 1266

Commenting with the issue of 8th March Banking and Insurance Appointments advertisements will appear on Tuesdays and the heading will be expanded to include Legal Appointments For further details contact: James Jarratt on 01-248 8000 Ext. 539

COMPUTER PROGRAMMER, 24-30, with 2-3 years experience. Banking background preferred. c. 25,000. Telephone No Personal 01-409 1944.

UNIVERSITY APPOINTMENTS

THE CITY UNIVERSITY BUSINESS SCHOOL LECTURES IN BUSINESS ECONOMICS Applications are invited for the above post. The successful candidate will be principally involved in teaching and developing research in price theory and its application...

WEEK'S FINANCIAL DIARY

The following is a record of the principal business and financial engagements during the week. The Board meetings are mainly for the purpose of considering dividends and official indications are not always available whether dividends concerned are interim or final. The sub-divisions shown below are based mainly on last year's timetable.

Table with columns for TO-DAY, TO-MORROW, WEDNESDAY, FEBRUARY 23, THURSDAY, FEBRUARY 24, FRIDAY, FEBRUARY 25, SATURDAY, FEBRUARY 26, SUNDAY, FEBRUARY 27. Rows list various companies and their financial events.

APPOINTMENTS

Chief executive for Aerosols International

Mr. Peter J. Dunberley has been appointed managing director of AEROSOLS INTERNATIONAL, part of the health and chemicals division of Caltex. Mr. E. F. Hill has been appointed regional director of South West Region of LAING CONSTRUCTION. Mr. N. Condon has been appointed associate vice-president of ITEL INTERNATIONAL.

GENERAL APPOINTMENTS

STOCKBROKING Overseas Sales Representative. A leading firm of City Stockbrokers require a Sales Representative (male or female) for their Australian Department based in London.

LEGAL NOTICES

No. 60375 of 1977. In the HIGH COURT OF JUSTICE Chancery Division Companies Court. In the Matter of MARSHALL-HICKORY CONSTRUCTION LIMITED and the Matter of The Companies Act, 1948.

COMPANY NOTICES

TAISHO MARINE AND FIRE INSURANCE COMPANY, LIMITED

DEPOSITORY RECEIPTS TO BEARER (issued pursuant to the Deed Poll dated 28th July, 1961) Notice of meeting of the holders of the Certificates evidencing Depository Shares each representing 10 Shares of Common Stock of 50 Yen each

NOTICE IS HEREBY GIVEN, pursuant to Clause 2 of the Second Schedule to the Deed Poll (the "Deed Poll") dated 28th July, 1961 and made by Hambros Bank Limited (the "Depository") as modified and supplemented by the supplemental conditions endorsed on the Certificates, that a meeting of the holders of the Certificates ("LDR Holders") will be held at 51 Bishopsgate, London, EC2P 2AA on Wednesday, 9th March, 1977 at 11.00 a.m. for the purpose of considering, and if thought fit, passing an Extraordinary Resolution, with the assent of the Depository, to sanction and agree to the modification and arrangement in respect of the rights of the LDR Holders occasioned by the rights of the LDR Holders being varied so as to rank pari passu in all respects and ratably with the rights of the holders of European Depository Receipts ("EDR") issued by the Depository pursuant to the Deposit Agreement dated 17th September, 1976, and made between Taisho Marine and Fire Insurance Company, Limited and the Depository, to the intent that the LDR Holders shall be treated for all purposes as though they were holders of EDRs and to authorise and direct the Depository to execute all such deeds and documents as it may deem requisite to give effect to the foregoing.

NOTE:—Any person who intends to appear on the hearing of the said Petition must serve on or send by post to the above-named Company in writing of his intention to do so, the notice must state the name and address of the person, or if a firm the name and address of the firm, and must be signed by the person or firm, or his or their solicitor (if any) and must be served, or if posted, must be sent by post in sufficient time to reach the above-named net later than four o'clock in the afternoon of the 4th day of March 1977.

No. 602 of 1977. In the HIGH COURT OF JUSTICE Chancery Division Companies Court. In the Matter of FELLMAN AUTO MOBILES LIMITED and the Matter of The Companies Act, 1948.

NOTE:—Any person who intends to appear on the hearing of the said Petition must serve on or send by post to the above-named Company in writing of his intention to do so, the notice must state the name and address of the person, or if a firm the name and address of the firm, and must be signed by the person or firm, or his or their solicitor (if any) and must be served, or if posted, must be sent by post in sufficient time to reach the above-named net later than four o'clock in the afternoon of the 4th day of March 1977.

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CLASSIFIED ADVERTISEMENT RATES. Per column line cm. Industrial & Business Promoters for Sale, Residential Property, Business & Investment Opportunities, etc.

RESTAURANTS

Somewhere Different for Lunch? THE MANCHURIAN 42 Baker Street, London W1. Monday to Saturday noon to 9 p.m. and 8 p.m. to 1 a.m.

HOTELS

Saundts hotel NORTH DEVON SAUNTON could be the place... Where you have come to get to know your family and yourself—all over again. Just a few hours drive from the city centre and all that entails...

TRAVEL

SOUTH OF FRANCE. Hire a luxurious boat on the Canal du Midi this summer. From the Canal du Midi to the Mediterranean Sea, a choice of starting points: Yarmouth or telephone 049379/562 or 247.

EDUCATIONAL

FRENCH INSTITUTE (Universities of Paris and Lille) SECRETARIAL COLLEGE, 114 Cranborne Gardens, London SW7 2JR. Tel: 01-589 6211 ext. 43/44.

Financial handiwork. Sumitomo Bank. Where up-to-the-minute computerization helps make business easier and more efficient. But helpful hands will always play a prime part in getting a project done. The Sumitomo Bank, Limited. Osaka, Tokyo, Kyoto, Kobe, Nagoya and other major cities in Japan. London, Düsseldorf, Brussels, Vienna, New York, Chicago, Los Angeles, San Francisco, Seattle, Hong Kong, Singapore, Jakarta, Sydney, Mexico City, São Paulo, Rio de Janeiro, Beirut, Tehran.

PERSONAL. OVER 40,000 SCHOOLS AND EDUCATIONAL ESTABLISHMENTS can be reached by mail. The Educational Addressing and Mailing Service, Darby House, Redhill, Surrey, RH1 3ON. Meridian 2223.

GOURMET. GALLIPOLI RESTAURANT, off Old Strand, London WC2N 6JF. Dinner and dancing 7 p.m. to 1.15 a.m. Mon-Sat. Tel 588 1922

Businessman's Diary

U.K. TRADE FAIRS AND EXHIBITIONS

Title Indian Electronic Components Exbn. (cl. Mar. 31)
Mar. 6 Boat and Leisure Life Show
Mar. 4 International Men's and Boys' Wear Exhibition
Scottish Engineering Exhibition
National Stamp Exhibition
Quality by Design Exhibition
Scientific & Laboratory Equip. & Supplies Exbn.
Licensed Hotel Catering Exhibition
Daily Mail Ideal Home Exhibition
Apr. 2 National Carpet Fair
Apr. 17 Industrial Security Equipment Exhibition
Apr. 18 International Packaging Exhibition
Apr. 17 Temperature Measurements and Control Exbn.
Apr. 26 Scottish Hotel, Catering and Licensed Trade Exbn.
Apr. 24 Computermarket '77 Exhibition
Apr. 24 International Tyre and Equipment Exhibition

Venue
28-30, Cork Street, W.1
Nat. Exbn. Centre, B'ham
Earls Court
Glasgow
New Horticultural Hall
Design Centre, S.W.1
Nat. Exbn. Centre, B'ham
Metropole Centre, Brighton
Blackpool
U.S. Trade Center, W.1
Nat. Exbn. Centre, B'ham
Wembley Conf. Centre
Glasgow
Cunard Int. Hotel, W.6
Earls Court

ERSEAS TRADE FAIRS AND EXHIBITIONS

International Food Fair (cl. Feb. 23)
Motorcycle Exhibition (cl. Feb. 27)
International Toy Fair (cl. Feb. 25)
Intl. Technical Fair of Textile Machy. (cl. Feb. 27)
Mar. 6 International Leather and Footwear Exhibition
Mar. 3 International Spring Fair
Intl. Electrical, Electronic and Automation Exbn.
International Footwear Fashion Exbn.
Hotels, Caterers, Bakers International Exbn.
International Spring Fair
International Agricultural Show
Spring Clothing Fair
International Footwear Fair
International Spring Trade Fair
Intl. Construction Machinery Fair
British Industrial Exhibition
International Motor Show
British Export Fair
Petrochemical and Refining Exhibition

Brum
Brussels
Valencia
Barcelona
Stockholm
Frankfurt
Bilbao
Bologna
Hamburg
Utrecht
Paris
Belgrade
Eldo
Vienna
Munich
Caracas
Geneva
Tokyo
Houston

BUSINESS AND MANAGEMENT CONFERENCES

CBI: French Language Law for Exporters to France
New York Univ.: Euro-American Commodities
Trenton: Advertising and Marketing Conf.
CBI: Business in Kuwait
Concrete Soc.: Middle East Construction
Interface: General Man. Practical Statistics
Financial Times, Investors Chronicle, The Banker
The Future for the Euromarkets
Weisweiler Adfoc: Exchange Control
ICE: International Company Lawyers' Conference
WTC: Finance of Exports
IILP: Overseas Earnings from Outward Licensing
Frank Jenkins: Maximising Press Coverage
Manufacturing Optics Intl.: Ophthalmic Symposium
Br. Productivity Council: Organising Conferences
Mar. 4 IPM: The Management Development Process
Mar. 1 Financial Times, Institut der Wirtschaftsprüfer in Deutschland e.V.: European Tax Conference
Mar. 4 P.E. Cons. Group: Statistical Quality Control
Lamsac: Corporate Man. Dev. in Local Government
GENECA: Agriculture and Frozen Foods
ICMA: Industrial Relations
Interbank Research Org.: Finance Houses
Forbes: Consumer Affairs—Threat or Opportunity
Kemp-Trelog: Decision Making for Senior Man.
Emp. Assn.: The Law and the Supervisor
RACIE: Situation Report Conference
MTC: Successful Office Supervision
Inst. Chartered Accountants: Exchange Control
Solihull Staff Assn.: Recent Employment Legislation
Urwick: Conditions of Contract
Shirley Institute: Energy Savings in Textiles
Financial Times, La Repubblica, Alitalia, Investors
Chronicle: European Business Forum
Wales International: General Management
Dunelm: Ind. Coll.: Profit Management
IRA: Financial Communication in Industry
Henley: Consumers' Purchasing Power & Spending
Inbucou: Transactional Analysis
Lon. Pr. Serv.: Social Security and Pensions
ICE: Research & Corp. Planning in the Chem. Ind.
Assoc. Cert. Acc.: European Taxation
District Heating Assoc.: National Conference

CBI Council Chamber, S.W.1
London Hilton, W.1
Cunard Hotel, W.6
CBI Council Chamber, S.W.1
Newcastle
Port House, Reading
Royal Lancaster Hotel, W.2
The White House, N.W.1
Portman Hotel, W.1
World Trade Centre, E.1
Queen Mary College, E.1
Connaught Rooms, W.C.2
Royal Garden Hotel, W.8
Metropole Hotel, W.2
Clive Hotel, N.W.3
Munich

LABOUR NEWS

Hewlett-Packard plan may infringe pay policy

BY OUR GLASGOW CORRESPONDENT

THE DEPARTMENT OF Employment is investigating a plan of Hewlett-Packard, the electronic manufacturers, to pay its 1,100 U.K. employees 13 months' wages this year, to see if the pay code would be infringed.

The U.S. company, which has criticised pay restrictions as being counter-productive, is to start paying its employees' monthly salaries in advance instead of in arrears. On February 28, all staff—the company's entire workforce has stable status—will receive their normal salary for this month. The following day they will get their pay which is not increasing salaries.

Hewlett-Packard intends to write off the extra month's pay however pay restrictions are removed, but the company says it is not increasing salaries.

The company says its lawyers have cleared the scheme with the Department of Employment. However, a Department spokesman said that officials would be contacting the company as its proposals appeared to be a device to evade the pay limits of Hewlett-Packard's 680 at their South Queensferry plant in Scotland, and another 400 sales and service staff whose combined efforts doubled profits last year to more than £2.5m.

However, a Department spokesman said that officials would be contacting the company as its proposals appeared to be a device to evade the pay limits of Hewlett-Packard's 680 at their South Queensferry plant in Scotland, and another 400 sales and service staff whose combined efforts doubled profits last year to more than £2.5m.

Rail unions seek bigger say

By Christian Tyler, Labour Staff

BRITISH RAIL begins formal discussion with the three railway unions this week about extending worker participation in the industry at all levels.

Initially at least, the unions are expected to concentrate on their demands for decision-sharing at the lower levels, possibly by abolishing the consultative machinery—with which some union leaders are far from happy—and transferring all its functions into the negotiating machinery.

This is in sharp contrast to the approach adopted by the Post Office and its unions who last week confirmed their agreement on a plan, very similar to the Bullock proposals, to give parity on the Board with a smaller independent group of directors.

The biggest of the three rail unions, the National Union of Railwaymen, and the white-collar Transport Salaried Staffs Association have come out most clearly in favour of parity at Board level.

TGWU secretaryship voting starts to-day

BY OUR LABOUR STAFF

VOTING BEGINS to-day to find the next general secretary of the Transport and General Workers' Union, the most powerful union job in the country.

The decision on a successor to Mr. Jack Jones will emerge in about mid-April after four weeks of balloting by the TGWU's 1.8m. members in 7,000 branches around the country. Mr. Jones does not retire until the end of March next year.

As the preparation got under way, there was a surprising intervention of the week-end from Mr. Frank Cousins, the former general secretary, whose son John, labour relations director at the National Economic Development Office, is one of the contenders.

Mr. Cousins senior said that he, as general secretary, "would never have supported the social contract in the first place, a statement that backed up the campaign line being taken by his son but one which clearly irritated Mr. Jones, the social contract's chief architect.

Favourite for the job is Mr. Moss Evans, the union's national organiser; other front runners from the 14 candidates are Mr. Alec Kitton, executive officer

Invited

But they along with the more militant footplate men's union ASLEF, appear primarily concerned to give their members an equal say in the day-to-day organisation of their jobs.

The unions have invited the Tavistock Institute of Human Relations to hold their meeting with BR officials on Wednesday. The institute produced a report on participation on the railways six years ago, in response to a commission from the then Minister of Transport, Mr. Richard Marsh.

This survey, based on an attitude survey of 2,000 railwaymen, will be used to strengthen the unions' case for reform at the lower levels; leaving the much more controversial argument about worker-directors to be hammered out as a separate item.

The unions are still awaiting the report of the Lord Committee on industrial democracy in the public sector, but the NUR at least is keen to set up a system in advance of Government legislation.

Entertainment Guide

OPERA & BALLET

COLISEUM, 8.00. THE ROYAL OPERA. ENGLISH NATIONAL OPERA. OVERSEAS TOURS. ENGLISH NATIONAL OPERA. OVERSEAS TOURS. ENGLISH NATIONAL OPERA. OVERSEAS TOURS.

THEATRES

RECENT, 7.30. 1977. Evening 8.30. Friday and Saturday 7.00 and 9.15. OVERSEAS TOURS. ENGLISH NATIONAL OPERA. OVERSEAS TOURS. ENGLISH NATIONAL OPERA. OVERSEAS TOURS.

CLUBS

EVE, 189, Regent Street, 7.30. 1977. A. B. C. D. E. F. G. H. I. J. K. L. M. N. O. P. Q. R. S. T. U. V. W. X. Y. Z.

ART GALLERIES

NINE HUNGARIAN ARTISTS at the Mall. Gallery, 7.30. 1977. A. B. C. D. E. F. G. H. I. J. K. L. M. N. O. P. Q. R. S. T. U. V. W. X. Y. Z.

CHILDRENS HOLIDAYS

SWITZERLAND—AROSA. How Valais. Summer-winter tennis, and outdoor sports, ice rink, snow, etc. Feb. 21-23.

Week's Parliamentary business

Commons: Remains of the Coventry Market (Financial) Bill. Motion on amendments on textiles. Expenditure, Education, Home Office. Subject: Attainment of the school leaver. National Union of The Joint Four. 4.15 p.m. Expenditure on General sub-Committee. Subject: Development of Civil Service. With Mr. Edward Heath 4.15 p.m.

THURSDAY—Commons: Scotland and Wales Bill, Committee stage. Lords: Torts (Interference with goods) Bill, third reading. Patents Bill, committee stage. Short debate on the question of legislation to amend the Rent Act. Select Committee: Race Relations and Immigration Committee. Subject: Government assumptions about potential immigration. Witnesses: Home Office officials (Room 15, 4 p.m.).

FRIDAY—Commons: Private members' Bills.

U.S. group may employ RAF men

ABOUT 200 former RAF air and ground crew may be offered jobs by a U.S. owned aviation freight company which recently bought a fleet of 10 giant Belfast aircraft from the Government.

The company, Pan African Freight Liners, will operate the Belkams, axed from the RAF as part of the defence cuts last September—on routes to landlocked African States.

"We may well be in a position to offer employment to quite a few of the RAF staff made redundant when the Belfast squadron was disbanded," Pan African said yesterday.

"We are looking for about 200 pilots and technicians."

A clause in the purchase contract forbids disclosure of the price for the 10 aircraft—the biggest built by any European NATO airforce.

Pan African, however, have insured the airframes for £1.14m, each and informed sources believe the purchase price was about £1m apiece.

THE UNION STEEL CORPORATION (OF SOUTH AFRICA) LIMITED

(Incorporated in the Republic of South Africa)

REPORT FOR THE YEAR ENDED 31st DECEMBER, 1976

The directors announce that the audited consolidated results for the year ended 31st December 1976, are as follows:

12 Months ended	12 Months ended
31.12.76	31.12.75
Turnover	R800 R900
	141 457 135 442
Trading profit	14 346 16 389
Income from investments	542 381
	14 888 16 770
Less: Depreciation	3 729 3 721
Interest on borrowings	8 911 5 159
Profit before taxation	7 228 9 900
Taxation	1 589 3 602
Group profit	5 640 6 298
Earnings per ordinary share	19.44c 21.5c

The audited consolidated group profit before tax for the year amounted to R7 228 000 compared with a profit of R9 900 000 for the previous year.

The group profit after tax for the year amounted to R5 640 000 which is 8688 000 or 10% lower than the taxed profit for 1975.

The following aspects are of importance in reviewing the results:

- Profits on steel products are less than the previous year as a result of lower despatches due to poor market conditions. The market conditions during the last 6 months of the year have declined considerably.
- Veldmaster's contribution towards the group profit has improved, although this company is not yet in a profit position. Commissioning problems occurred in the parts plant.
- The USCO Aluminium Corporation which manufactures and markets aluminium conductor, has again had a successful year. Profits for the year are higher than that of the previous year as a result of a sustained demand for conductor.
- Although the market deteriorated, earnings maintained their contribution towards the group's profit.
- The USCO group's deferred tax and tax liability is R2 004 000 less than in 1975 due to tax allowances on capital expenditure. Interest paid, however, increased by R252 000 as a result of higher interest rates and increased cash requirements for the financing of working capital and capital expenditure.

Jenkins claim on pickets 'irresponsible'

A UNIVERSITY vice-chancellor has rejected an allegation from union leader Mr. Clive Jenkins that "anti-union lorry drivers" were endangering peaceful pickets.

Dr. R. B. Hunter, vice-chancellor of Birmingham University, said yesterday that the claim by Mr. Jenkins was "irresponsible in its disregard for the facts and its potential for stirring up trouble."

Mr. Jenkins, general secretary of the Association of Scientific, Technical and Managerial Staffs, sent a telegram to Dr. Hunter, saying: "Our union is outraged at your undisciplined and disorderly anti-union lorry drivers who are now endangering our peaceful pickets."

COMMERCIAL BANK OF GREECE

shareholders of the Commercial Bank of Greece, at its first meeting since the election of the new Board of Directors, thus ending the status of Temporary Administrator.

The new Board of Directors, at its first meeting since the election of the new Board of Directors, thus ending the status of Temporary Administrator.

Mr. Evangelos AP. Eliades, until now Director, and General Manager, Dr. Tryfon J. Ili, Attorney at Law, as Vice-Chairman and Manuel Kipouridis, until now Manager of the Bank of Greece, as Managing Director.

Other directors on the nine-member Board are: Constantinos Venardis, Honorary General Manager of the Ministry of Finance, Mr. Grigoris S. Secretary General of the Federation of Greek Handicraftsmen of Piraeus, representative of the General Confederation of Greek Handicraftsmen of Greece, Mr. Spyridon S. Assistant Professor at the University of Athens, Mr. Achilles Boundovis, Governor of the Piraeus Employment Organisation, Mr. Ioannis S. shipowner and Mr. George Hadjigeorgidis, member of the Association of Tobacco Merchants of Greece.

It is worth noting that as a result of the recent increase in the equity capital of the Commercial Bank of Greece, its total capital and reserves have risen from Dr. 1,903m. (\$50.8m.) to Dr. 7,440m. (\$200.8m.).

TEHRAN. 10.30 NON-STOP.

Now Iran Air have non-stop flights for Tehran leaving at 10.30am. So you can arrive in the early evening, without having to start at the crack of dawn.

For details of any of our seventeen flights a week to Tehran, or to make reservations, contact your travel agent.



THE WORLD'S FASTEST GROWING AIRLINE.

Industrial Hanover Fair 1977

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Dividend Announcement

Notice is hereby given that a final dividend of 14 cents per share has been declared on the cumulative participating preferred "A" and "B" shares for the twelve months ended 31st December, 1976.

Notice is also given that a dividend of 5.5 cents per share has been declared on the ordinary shares.

Dividends are payable to shareholders registered in the books of the corporation at the close of business on the 11th March, 1977.

The transfer books and registers of members will be closed from 12th March to 25th March, 1977, both days inclusive, and warrants will be posted from Johannesburg and London on or about 14th April, 1977. Registered shareholders paid from London will receive the United Kingdom currency equivalent on 5th April, 1977 of the rand value of their dividends.

Any change of address or dividend instructions must be received by the transfer secretaries on or before 11th March, 1977.

Non-resident shareholder's tax of 15% will be deducted from dividends where applicable.

By order of the Board
D. C. ODENDAAL
Divisional Manager
Finance and Administration

Registered Office: General Hertweg Road, P.O. Box 48, Vereeniging 1830 South Africa.

London Office: 40, Holborn Viaduct, EC1P 1AJ.

17th February, 1977.

INDUSTRIALS—Continued

Table of industrial stocks including companies like Anglo-Siam, Anglo-Siam, Anglo-Siam, etc. with columns for stock name, price, and other financial metrics.

MOTORS, AIRCRAFT TRADES

Table listing various motor and aircraft related companies such as Bentley, Bristol, and others, with their respective stock prices and details.

PROPERTY—Continued

Table of property-related stocks and companies, including various real estate and construction firms.

TRUSTS—Continued

Table of trust companies and their stock prices, such as Anglo-Siam Trust, etc.

TRUSTS—Continued

Continuation of the trusts table, listing more trust companies and their financial data.

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MINES—Continued

Table of mining stocks and companies, including Anglo-Siam, Anglo-Siam, etc., with columns for stock name, price, and other metrics.

Notes and financial information at the bottom of the page, including interest rates and company announcements.

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FINANCIAL TIMES

Monday February 21 1977

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Iran to cut defence spending

By Robert Graham, Middle East Correspondent

TEHRAN, Feb. 20. IRAN HAS decided to cut defence spending in order to come to terms with the reduced revenue expectations resulting from the two-tier oil price structure.

The cut of 2 per cent was announced by Mr. Abdul Majid Majidi, the director-general of the plan and Budget Organisation, presenting what is nevertheless a record £4bn budget for the coming fiscal year.

The cut may be temporary, pending an upturn in oil liftings. Observers also believe that it is probably designed to convince the Carter Administration that Iran's military spending is not exaggerated.

Nevertheless this is the first time since 1941, when the Shah came to the throne, that he has agreed to trim expenditure on the armed forces.

Mr. Majidi said that originally the budget was planned to total \$3.5bn more but the sharp reductions in oil liftings last month prompted a revision of estimates. He said that the Shah decided "at the last minute to cut the defence budget by 160bn rials" (\$2.26bn), the remaining cuts coming from civilian expenditure.

The main military cuts would come in "expenditure related to the construction of naval and air bases" as well as procurement of hardware, he said.

Reviewed

A substantial portion of this cut could be accounted for by delaying the start on the Chah Bahar naval base.

Mr. Majidi emphasised that when the oil revenue picture clarified and OPEC prices normalised, the budget would be reviewed. He said that defence items would be the first to be reinstated, he added.

Defence expenditure last year was \$2.1bn, equivalent to 27 per cent of the general budget, and this year it will be \$7.86bn, or 23 per cent of the general budget.

Military projects are being shelved rather than axed, it seems and observers believe that a decrease in defence spending will lessen the problems of absorption which have become increasingly acute.

Oil revenues, projected to account for only 70 per cent of total Government receipts, have been based upon a conservative assumption of liftings.

Mr. Majidi said that the day giving \$19.46bn (including a small amount for gas sales) against \$19.86bn for the present year ending March 21 with average liftings of 5.3m barrels a day taking into account a sharp drop in revenue in the first quarter of the new financial year due to delayed payments on crude purchases.

Because of reduced oil revenues, the Government for the first time in several years will resort to substantial domestic borrowing to the tune of some \$2.1bn. Public sector foreign borrowing will increase from \$1.2bn to \$1.4bn. Increased reliance will be put on improved tax collection with tax receipts rising 34 per cent.

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Governor gives Saudis details of new bonds

By Our Own Correspondent

JEDDAH, Feb. 20. MR. GORDON RICHARDSON, Governor of the Bank of England, is in Saudi Arabia for a four-day visit during which he is explaining details of Britain's sterling balance support scheme, and the proposed issue of foreign currency bonds to be offered to official holders of sterling in London.

The guest of Sheikh Abdul Aziz al-Quraysh, Governor of the Saudi Arabian Monetary Agency, the kingdom's central bank, Mr. Richardson is accompanied by Mr. Christopher McMahon, executive director of the Bank of England's overseas operations. Mr. McMahon is closely connected with the detailed international negotiations that have led to the setting up of a scheme to protect the U.K. from the effects of sudden withdrawals of overseas sterling holdings.

Mr. Richardson and Mr. McMahon go on Tuesday to Kuwait where Saudi Arabia are among the biggest foreign official holders of sterling, and are interested in the bonds. The Saudi Government has already stated that it is inclined to assist stabilisation of the British economy and to refrain from sudden movements of its sterling holdings. Saudi Arabia's reserves are second only to those of West Germany.

The final form of the proposed foreign currency bonds is likely to be announced shortly after the Governor and Mr. McMahon return to London at the end of this month.

New Treasury moves to curb spending

By Peter Riddell, Economics Correspondent

THE DEFEAT in the Commons and withdrawal by the Government of a number of proposals to cut public expenditure have led to intensive discussions between the Treasury and other Departments to prevent potential over-spending in the coming financial year 1977-78.

The main problems have arisen over proposals from the Department of Health and Social Security, though there is also a possible difficulty over redundancy rebates within the Department of Employment's budget.

The amount directly involved totals at least £50m in 1977-78, and more than £80m in the following financial year. In addition, requests are starting to come through that further spending above that laid down in the annual Expenditure White Paper published at the end of last month. A heated debate has, for example, developed within Whitehall about support for the shipping sector.

The potential over-spending does not pose any serious threat to the White Paper plans yet since there is time to seek offsetting cuts elsewhere.

Anyway, the amounts concerned so far are probably more than balanced by lower debt interest payments resulting from both a smaller borrowing requirement and a faster decline in interest rates than originally projected.

This does, however, highlight the pressures building up on the White Paper targets even before the start of the financial year.

Mr. Joel Barnett, the Chief Secretary to the Treasury, and his officials are reported to be taking a tough line to ensure that any over-spending is offset. But one spending Department is believed to be resisting cuts in its own area rather than elsewhere.

The possible over-spending has arisen mainly because of the Government's difficulties in the Commons. A proposal to restrict the unemployment benefit entitlement of those with occupational pensions of a certain size was defeated in a Commons committee, and has not been restored.

A proposal to recoup from insurance companies the full cost to the National Health Service of treating road accident cases, also included in the fully spent budget, has had to be dropped because of practical difficulties. This would have saved at least £20m in 1977-78, and £40m in a full year.

Only about £2m has been offset so far by cuts in centrally-financed health services, such as training and research.

The Department of Employment is deciding what to do after the defeat in the Commons by one vote on second reading of a Bill to reduce the rebate payable to an employer from the redundancy fund. This would have saved £13m in 1977-78.

The Treasury has repeatedly stressed its determination to keep spending within the limits of White Paper programmes and contingency reserves. A specific sum to allow for additional expenditure beyond original plans—as well as within cash limits on money outlays.

This aim has been achieved with considerable success in the current financial year but it could be as, if not more, difficult to succeed again in 1977-78 in view of the political pressures for spending in order to stimulate the economy given unemployment prospects.

Tories divided over next phase of wages policy

By Christian Tyler, Labour Staff

DIFFERENCES within the Conservative Party about the desirability of central control of incomes were highlighted at the week-end as the debate about the next pay policy continues to widen.

Sir Geoffrey Howe, Shadow Chancellor, said that a sustained reduction in Government overspending and control of the money supply were necessary if inflation and unemployment were to be dealt with.

These were the real issues behind the talk about the next pay policy, Sir Geoffrey said, and he called on the Prime Minister and his colleagues to spell out more clearly the true meaning for jobs of the IMF loan conditions imposed on Britain.

"These disciplines will inevitably require a further fall in real living standards," he said. "It is essential that people understand the need for self-restraint in free bargaining, where pay rises were kept in line with what a company or industry could afford.

But Mr. Peter Walker, who is not in the Shadow Cabinet, attacked the Conservative preference for tight monetary control over incomes policy by saying that for the Government to abandon pay restraint would be "an act of supreme lunacy".

Speaking in his Worcestershire constituency yesterday, Mr. Walker said there was an "unholy alliance" of market economists and militant trade unionists making an effective attack on the need for another pay policy phase after July.

His speech in turn provoked criticism from the Selsdon Group of Conservatives which said it was "tragic" that some leading Tories were still arguing that inflation could be tackled by central incomes control.

A statement from the group said: "Inflation is caused by Government overspending. Government policy attacks the symptoms rather than the underlying cause."

Meanwhile on the trade union front, one of the biggest white-collar unions, the Association of Professional, Executive, Clerical and Administrative Staff, lined up with those calling for a further pay formula.

APEX said there should be a general pay rise of 7 per cent, with a sum equivalent to 3 per cent of each company's payroll made available for dealing with wage differential problems.

The National Union of Agricultural and Allied Workers said that low-paid workers' basic rates must be raised even while the higher paid were seeing their relative positions in the wage ladder restored.

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Labour pressure group formed to counter Left influence

By Philip Rawston

LABOUR moderates at the week-end formed a new pressure group, the Campaign for Labour Victory, in a determined effort to counter the growth of Left-wing influence in the party.

Mr. William Rodgers, Transport Secretary and a leader of the old pro-Gaitskell Campaign for Democratic Socialism, launched the movement at a London meeting on Saturday organised by Manifesto Group MPs and attended by about 100 party activists.

Calling for constructive support for the Government and the party's mainstream of opinion, Mr. Rodgers said: "The outside right is an unrepresentative of the Labour tradition as the outside left."

But the meeting passed a unanimous resolution regretting the "negative attitudes" of the left-dominated National Executive Committee towards the Government and its neglect of party organisation.

Expressing concern at the loss of party support because of "present tendencies," Mr. Rodgers delivered a sharp attack on the NEC.

"It is certainly fair to ask whether the NEC speaks for the grass roots of the party," he said. "Despite recent overtures of peace, many people have the impression that the main opposition to our Government comes not from the Tories, but from the Labour NEC."

"The NEC's failure to rally support in an economic crisis around the time of the last party conference was unforgivable. Its claim to be representative is bogus. The so-called constituency section contains not a single 'lay' party activist. The women's section is an anomaly."

Mr. Rodgers suggested that the NEC should have members representing both local government and the Parliamentary Labour Party.

"But perhaps the most damning criticism of the present NEC," he added, "is their neglect of the party itself—its finances, organisation and membership. If the NEC put half the time and energy it devotes to public statements into perfecting the means to win elections, we should be infinitely better off."

He demanded: "How can we expect to succeed in by-elections—or in the county elections coming in May—if the voice of the NEC is constantly raised against our Government?"

But Mr. Rodgers said, the "legitimate left" of the Tribune Group should not allow itself to become "a Trojan horse for the wreckers."

As the moderate campaign was being launched, Mr. Ron Hayward, the party's general secretary, on Saturday renewed his appeal for an end to internal party squabbles.

The party seemed to be in danger of infiltration by a new mood of intolerance, he said at Hillingdon.

Warning against "destructive wrangling" on both the right and left wings of the party, he said: "If we fall into this trap, our minority Government will fall."

Mrs. Maureen Colquhoun, treasurer of the Tribune Group and Labour MP for Northampton North, faces a threat by some members of her local party to replace her because of her recent remarks that Labour should heed Mr. Roch Powell's speeches on immigrants.

Mr. Walker said there was an "unholy alliance" of market economists and militant trade unionists making an effective attack on the need for another pay policy phase after July. His speech in turn provoked criticism from the Selsdon Group of Conservatives which said it was "tragic" that some leading Tories were still arguing that inflation could be tackled by central incomes control.

Three on Official Secrets charges

Financial Times Reporter

THREE supporters of Philip Agee and Mark Rosenblatt, the Americans who face deportation, were charged under the Official Secrets Act last night. Police said the three would appear at Tottenham Magistrates' Court this morning.

Meanwhile they were kept in custody at Muswell Hill police station, where they have been questioned.

Mr. John Ashley Berry, a 32-year-old van driver living in Muswell Hill, is charged with communicating classified information to unauthorised persons contrary to the Official Secrets Act, 1911.

The other two are Mr. Duncan Campbell, a 24-year-old journalist and economist, and Mr. John W. Brightman, 47, a Time Out reporter living in Islington. They are charged with receiving classified information. After being held incommunicado since Friday, they were last night allowed to see their lawyers.

The three men were brought into Muswell Hill police station on Friday evening after a meeting in Mr. Berry's house.

While they were at the station, Special Branch police searched Mr. Campbell's flat in Brighton. It is thought that the police inquiries relate to information on the detonation of terrorist bombs in Northern Ireland using radio, but the police would make no official comment.

All three have been active supporters of Mr. Rosenblatt and Mr. Agee, who have recently been served with deportation orders for specified activities prejudicial to national security.

Mr. Campbell, an Oxford graduate, supplied much of the material for a controversial article which Mr. Rosenblatt wrote in Time Out on the Government Communications Centre in Cambridge. They have said that this article contained nothing which could not be obtained from published sources.

Clamping down

Mr. Anbrey was a colleague of Mr. Rosenblatt, who has since joined the Evening Standard. The Ministry of Defence has confirmed that Mr. Berry is a former soldier. He is believed to have been in the Royal Signals, where he was expert in military communications.

Mr. Tim Gosnell, organiser of the defence campaign, said they were going to do everything possible to ensure that the men were given bail.

He said: "The police charged Agee and Rosenblatt because they are foreigners and threatened with deportation. But they have looked at the people working with them and they are clamping down on them. The whole affair has rebounded on the police."

The police action has been strongly condemned by a number of Left-wing Labour MPs who are hoping to raise the matter in the Commons to-day.

Mr. Robin Corbett, MP for Hemes, Hemyatt, said it looked like "a well-timed attempt to harass or intimidate the campaign against the deportation of Agee and Rosenblatt and to influence the Commons debate on Tuesday in the Home Secretary's favour."

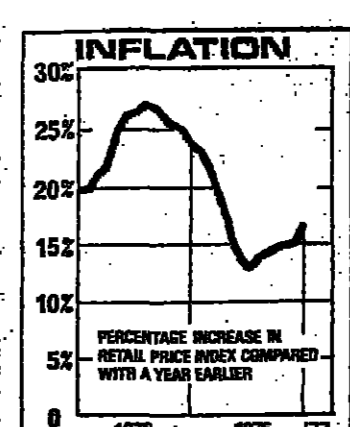
Mr. Corbett, secretary of the Parliamentary Labour Party civil liberties group said he wanted an urgent meeting with Mr. Henry Kissinger, the Home Secretary, this morning.

He said: "The detention of these three men follows a series of petty thefts of documents from the Agee-Rosenblatt defence committee and other incidents."

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THE LEX COLUMN

The need to make ED18 work



Almost half of the discussion period allowed by the Margoth Steering Group following the publication of ED18 has now elapsed, and inflation accounting is in no danger of losing its reputation as a fiercely controversial subject. As has been argued in this column before, ED18 is far from being a perfect solution to the problem. But some of the criticism now being levelled at it goes beyond trying to strengthen its weak points, and could undermine the whole programme for introducing a comprehensive system of inflation accounting. One method—the accountants' current purchasing power proposal—has already been abandoned, and it is hard to see what could survive the wreckage if ED18 goes the same way as ED8. Suggestions that inflation accounting could be reduced to one or two adjustments to historical cost accounts are simply not taking the subject seriously enough.

Unpleasant

The underlying difficulty that the Margoth Group now faces is that the benefits of inflation accounting have already been handed out—and only the difficult, tedious and unflattering parts remain to be tackled. Companies were originally attracted by the prospect of winning tax relief on depreciation and stock appreciation, both of which had effectively been conceded by late 1974. The next step was to obtain price code relaxations which came, in large measure, last summer. It is likely that the new price control arrangements—which will supersede the present code next August—will also be based upon a concept of inflation accounting.

But now companies are faced with the need to publish much less impressive current cost profit figures, and in many cases (but, to be fair, by no means all) are showing reluctance to do so. The standard excuse is that such figures might be "misleading" while inflation accounting is still a matter for debate. Companies are certainly entitled to wonder why they should risk damaging their share prices, and hence possibly their access to the capital market.

Where there is an incentive, of course, the attitude can be quite different. In sharp contrast to industrial companies the banks are complaining that ED18 should be amended to allow them to make much larger deductions from their pre-tax profits. One cannot here be the chance of more favourable tax treatment, and the clearing banks are also nervous that their profits will look unduly high in relation to the current cost earnings of industry.

Real profits

It is, of course, true that a different system of accounting does nothing in itself to change economic reality—it simply throws up different figures. And company managers are quick to claim that they already take full note of inflation accounting for internal purposes. Yet it is reasonable to suppose that the sharp fall in real profit-ability of British industry in the past few years had been more fully exposed to public scrutiny if quite different, in sharp contrast to industrial companies the banks are complaining that ED18 should be amended to allow them to make much larger deductions from their pre-tax profits. One cannot here be the chance of more favourable tax treatment, and the clearing banks are also nervous that their profits will look unduly high in relation to the current cost earnings of industry.

Racal

The fate of Racal's contested bid for Milgo Electronic of Florida should be known within the next 48 hours. There is now a good chance the U.K. company will be applied. The decision by ADDS has to choose who per cent of Milgo will go over 50 per cent for Racal agreeing to let take control of Milgo exchange for a minority in the enlarged group. It seems that the press represents Racal's final offer. ADDS has to choose who take the cash or to remain large minority holder in it. Of course nothing can be and dried so long as little remains in the air. But ever happens Racal is going ahead with its rights-issue in the near—probably next week—means that a substantial higher dividend payment assured for 1977-78. Racal's last week's power in the share price to that level the market valuation is £140m, so an issue may not raise much more than £15m. can be absorbed. Full control of Milgo about £37m. on the terms. This is being fine a dollar loan from Bank International which rent interest rates will be about 7 1/2 per cent. In Milgo will bring about of debt into the Racal sheet. But the group holdings will amount to £30m. after the rights its net assets, which are to only £34m. last May. be substantially increased by the issue and by current retentions of maybe £13m. Overall earnings may be marginally diluted by the ing, but still appear to be sharply higher. Scott, Golf, Hapcock reduced a proforma estimate for internal purposes. Yet it is reasonable to suppose that the sharp fall in real profit-ability of British industry in the past few years had been more fully exposed to public scrutiny if quite different, in sharp contrast to industrial companies the banks are complaining that ED18 should be amended to allow them to make much larger deductions from their pre-tax profits. One cannot here be the chance of more favourable tax treatment, and the clearing banks are also nervous that their profits will look unduly high in relation to the current cost earnings of industry.

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U.K. TO-DAY				
Area	1st	2nd	3rd	4th
London, S.E., Cent. S. England, Midlands, N. Wales	S	S	S	S
Shetland, N. Scotland, N.W. Scotland, Orkney, Shetland	S	S	S	S
Other areas	S	S	S	S

BUSINESS CENTRES				
City	1st	2nd	3rd	4th
London	S	S	S	S
Birmingham	S	S	S	S
Manchester	S	S	S	S

HOLIDAY RESORTS				
Resort	1st	2nd	3rd	4th
London	S	S	S	S
Birmingham	S	S	S	S
Manchester	S	S	S	S

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